USSR

SVECHNIKOV, G. M., SERGEYEV, R. M., and TREGUB, I. K.

"Impul'snyye skhemy na poluprovodnikakh i ferritakh" (Pulse Circuits Using Semiconductors and Ferrites) Moscow, 1972, 272 pp, p 3)

Translation:

FOREWORD

Because of the broad application of semiconductor and ferrite pulse systems in electronics, a need for literature on such circuits has risen and grown.

This book considers the principles of the structure, physical processes, and basic computational relationships in pulse circuits using semiconductor devices and ferrites, and offers examples of design of basic circuit types.

It is a textbook for radio officers and is also meant for students of intermediate and advanced military schools.

Chapter 1 was written by I. K. Tregub; Chapters 2 and 4, except for Articles 5 and 6, were written by G. M. Svechnikov; Chapter 3 and Articles 5 and 6 of Chapter 4 were written by R. M. Sergeyev.

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USSR

SVECHNIKOV, G. M., SERGEYEV, R. M., and TREGUB, I. K.

"Impul'snyye skhemy na poluprovodnikakh i ferritakh" (Pulse Circuits Using Semiconductors and Ferrites) Moscow, 1972, 272 pp, pp 268-269

Translation:

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SVECHNIKOV, S.B.

USSR 539.08
6-73

XIV-8. STUDY OF THE MORPHOLOGY OF THE GROWTH OF EPITAXIAL FILMS BY THE ELECTRON DIFFRACTION METHOD

[Article by A. I. Fedorin, S. B. Svechnikov, N. M. Yarchun, Yu. A. Tkhorik, Yu. Ye. Shmatko, Kiev; Novosibirsk, Trudy Simpoziuma po Protsessam Rosta i Sin-tezu Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 200]

In this paper it was demonstrated that the electron-microscope study of the film surface by the replica method can turn out to be inadequate to obtain unique conclusions regarding the morphology and mechanical growth of a film. The most complete information about the growth process is given by the complex use of electron diffraction and electron microscopy in different stages of growth beginning with thicknesses of several tens of atomic layers. The application of the indicated methods to the study of epitaxial films of germanium on substrates of silicon and gallium arsenide permitted detection of the morphological peculiarities of the film growth.

USSR

UDC 621.383.8

KRETULIS, V. S., OLEKSENKO, P. F., SVECHNIKOV, S. V., Kiev

"An Optron With Direct Optical Coupling as an Electron-Optical Element"

Moscow, Avtomatika i Telemekhanika, No 8, Aug 1970, pp 141-152

Abstract: The authors consider the functional possibilities of an optron with direct optical coupling as a transducer of electrical amplification, multiplication, summation and differentiation signals. Expressions are derived for the transfer coefficient of the optron and its Q. Comparative parameters are given for optrons with various optron pairs. The structural singularities of various electron-optical two-terminal pair networks based on injection photodiodes, conventional photodiodes, phototransistors, photoresistors, thin-film electrophosphors, and thin-film photoresistors are considered. Experimental characteristics are given for electron-optical devices which perform operations of differentiation, signal multiplication and frequency multiplication, as well as the characteristics of a high-sensitivity device which converts DC voltage to AC voltage in the microvolt region.

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USSR

UDC 621.383.4.004.14

ZYUGANOV, A.N., SVECHNIKOV, S.V., SMOVZH, A.K.

"On The Problem Of The Application Of Photopotentiometers As Function Generators"

Radiotekhnika i elektronika, Vol XVII, No 5, May 72, pp 1067-1072

Abstract: A computation of the profile of the resistor of a function photopotentiometer is presented, based on the solution of a two-dimension Laplace equation with the condition of the existence of a leakage current lengthwise of the entire device. A criterion is obtained for the applicability of a one-dimensional approximation during computation of a function photopotentiometer. The conditions imposed on the transfer function are determined. The theoretical positions of the paper are confirmed by experimental studies conducted with models of function photopotentiometers made of electrical conducting paper. A cosine function was chosen as a control transfer function. Measurements were made with the aid of the EGDA-60 integrator of the Institute Of Mathematics, Academy Of Sciences, Ukrainian SSR. A comparison is shown of the dependence of the error of a function generator on the magnitude of the scaling constant for one-dimensional and two-dimensional approximations. The potential distribution at the resistor--photolayer boundary is shown for a function photopotentiometer operating in a regime of leakage currents. The elimination of the errors of a function generator connected with the presence of leakage currents across the photolayer is the principal result of the paper. This offers the prospect of

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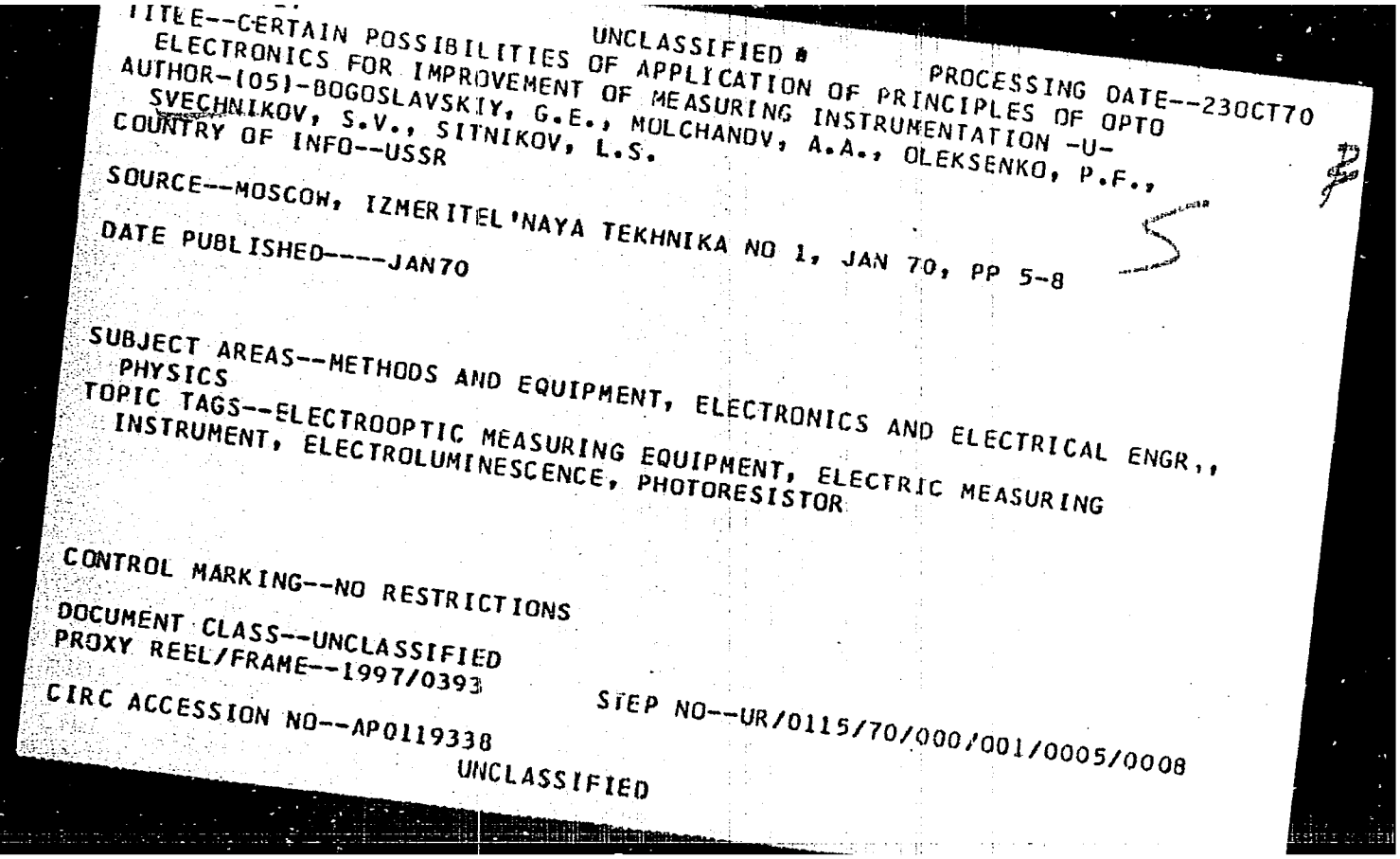
USSR

ZYUGANOV, A.N., et al, Radiotekhnika i elektronika, Vol XVII, No 5, May 72, pp 1067-1072

using semiconductor materials as the photoconducting layers of function photopotentiometers which have smaller magnitudes of the ratio of light and dark conductivity as compared with CdS and CdSe, and are also characterised by a smaller inertia of the photoconductivity, which makes it possible to expand substantially the frequency range of function generators based on photopotentiometers. 3 fig. 5 ref. Received by editors, 8 April 1971.

2/2



UNCLASSIFIED

TITLE--CERTAIN POSSIBILITIES OF APPLICATION OF PRINCIPLES OF OPTO ELECTRONICS FOR IMPROVEMENT OF MEASURING INSTRUMENTATION -U-

AUTHOR-(05)-BOGOSLAVSKIY, G.E., MOLCHANOV, A.A., OLEKSENKO, P.F., SVECHNIKOV, S.V., SITNIKOV, L.S.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZMERITEL'NAYA TEKHNIKA NO 1, JAN 70, PP 5-8

DATE PUBLISHED----JAN70

SUBJECT AREAS--METHODS AND EQUIPMENT, ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--ELECTROOPTIC MEASURING EQUIPMENT, ELECTRIC MEASURING INSTRUMENT, ELECTROLUMINESCENCE, PHOTORESISTOR

CONTROL MARKING--NO RESTRICTIONS

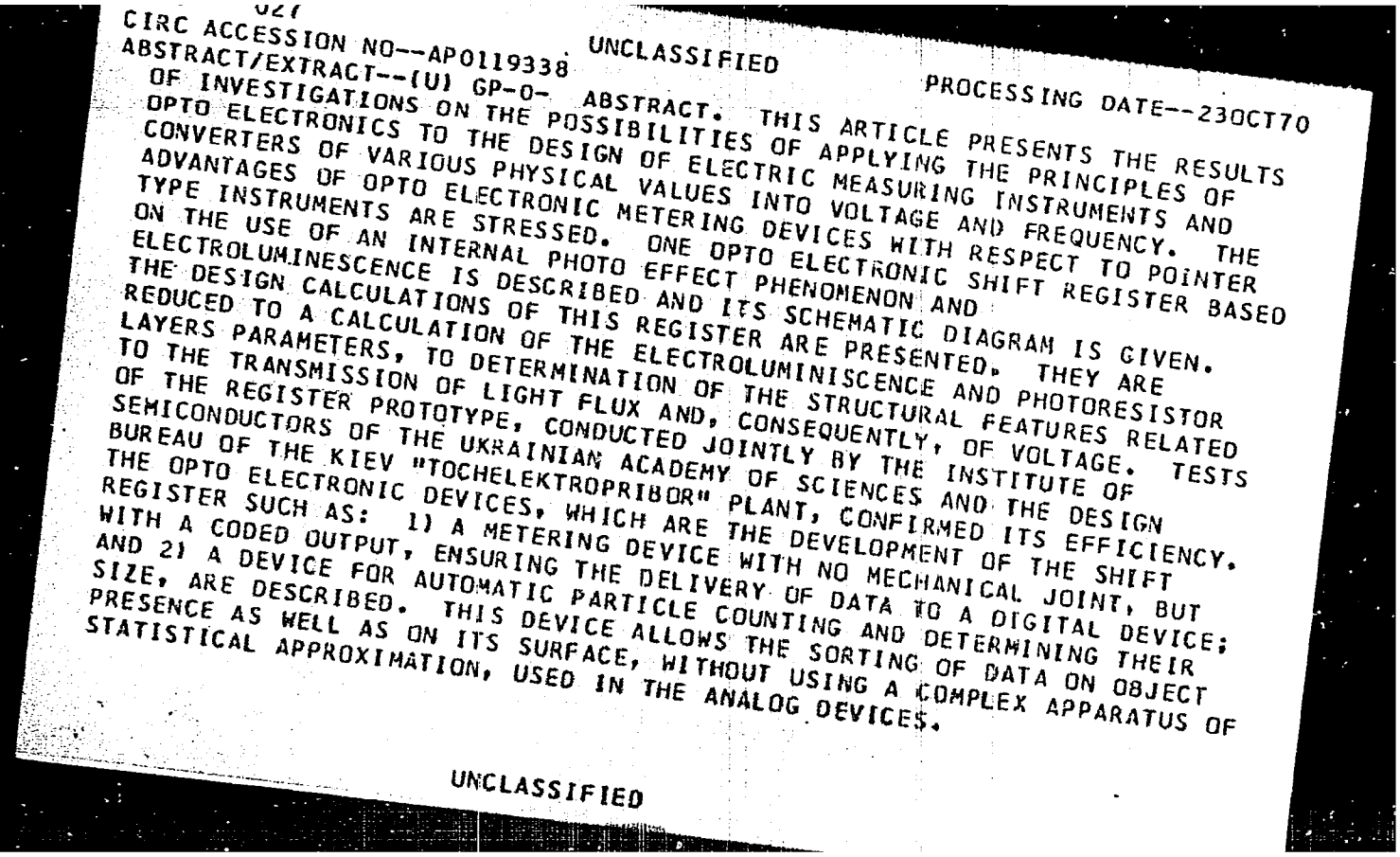
DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0393

STEP NO--UR/0115/70/000/001/0005/0008

CIRC ACCESSION NO--AP0119338

UNCLASSIFIED



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CIRC ACCESSION NO--AP0119338 UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS ARTICLE PRESENTS THE RESULTS OF INVESTIGATIONS ON THE POSSIBILITIES OF APPLYING THE PRINCIPLES OF OPTO ELECTRONICS TO THE DESIGN OF ELECTRIC MEASURING INSTRUMENTS AND CONVERTERS OF VARIOUS PHYSICAL VALUES INTO VOLTAGE AND FREQUENCY. THE ADVANTAGES OF OPTO ELECTRONIC METERING DEVICES WITH RESPECT TO POINTER TYPE INSTRUMENTS ARE STRESSED. ONE OPTO ELECTRONIC SHIFT REGISTER BASED ON THE USE OF AN INTERNAL PHOTO EFFECT PHENOMENON AND ELECTROLUMINESCENCE IS DESCRIBED AND ITS SCHEMATIC DIAGRAM IS GIVEN. THE DESIGN CALCULATIONS OF THIS REGISTER ARE PRESENTED. THEY ARE REDUCED TO A CALCULATION OF THE ELECTROLUMINISCENCE AND PHOTORESISTOR LAYERS PARAMETERS, TO DETERMINATION OF THE STRUCTURAL FEATURES RELATED TO THE TRANSMISSION OF LIGHT FLUX AND, CONSEQUENTLY, OF VOLTAGE. TESTS OF THE REGISTER PROTOTYPE, CONDUCTED JOINTLY BY THE INSTITUTE OF SEMICONDUCTORS OF THE UKRAINIAN ACADEMY OF SCIENCES AND THE DESIGN BUREAU OF THE KIEV "TOCHELEKTROPRIBOR" PLANT, CONFIRMED ITS EFFICIENCY. THE OPTO ELECTRONIC DEVICES, WHICH ARE THE DEVELOPMENT OF THE SHIFT REGISTER SUCH AS: 1) A METERING DEVICE WITH NO MECHANICAL JOINT, BUT WITH A CODED OUTPUT, ENSURING THE DELIVERY OF DATA TO A DIGITAL DEVICE; AND 2) A DEVICE FOR AUTOMATIC PARTICLE COUNTING AND DETERMINING THEIR SIZE, ARE DESCRIBED. THIS DEVICE ALLOWS THE SORTING OF DATA ON OBJECT PRESENCE AS WELL AS ON ITS SURFACE, WITHOUT USING A COMPLEX APPARATUS OF STATISTICAL APPROXIMATION, USED IN THE ANALOG DEVICES.

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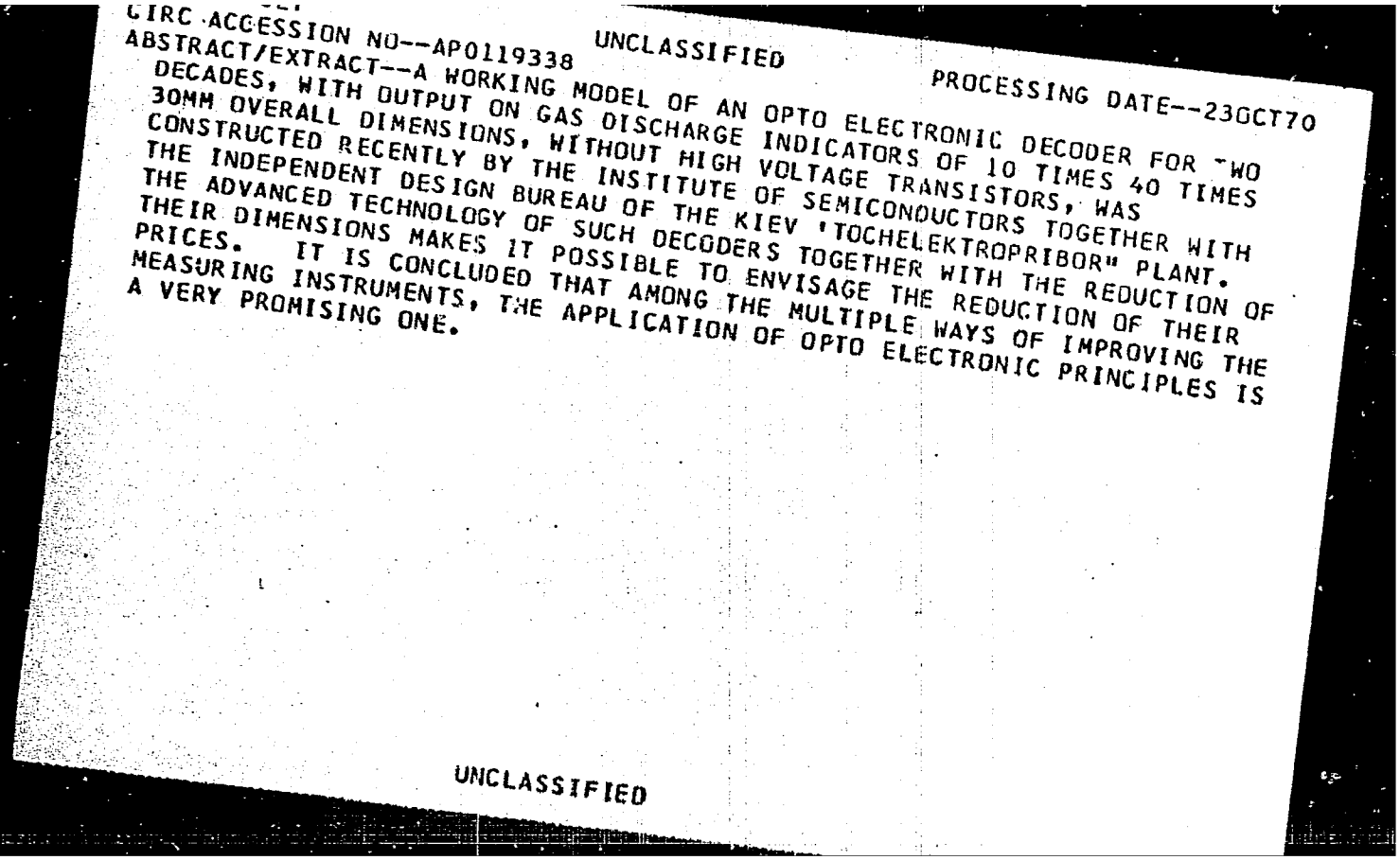
APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220008-2"



CIRC ACCESSION NO--AP0119338 UNCLASSIFIED PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--A WORKING MODEL OF AN OPTO ELECTRONIC DECODER FOR TWO DECADES, WITH OUTPUT ON GAS DISCHARGE INDICATORS OF 10 TIMES 40 TIMES 30MM OVERALL DIMENSIONS, WITHOUT HIGH VOLTAGE TRANSISTORS, WAS CONSTRUCTED RECENTLY BY THE INSTITUTE OF SEMICONDUCTORS TOGETHER WITH THE INDEPENDENT DESIGN BUREAU OF THE KIEV 'TOCHELEKTROPRIBOR" PLANT. THE ADVANCED TECHNOLOGY OF SUCH DECODERS TOGETHER WITH THE REDUCTION OF THEIR DIMENSIONS MAKES IT POSSIBLE TO ENVISAGE THE REDUCTION OF THEIR PRICES. IT IS CONCLUDED THAT AMONG THE MULTIPLE WAYS OF IMPROVING THE MEASURING INSTRUMENTS, THE APPLICATION OF OPTO ELECTRONIC PRINCIPLES IS A VERY PROMISING ONE.

UNCLASSIFIED

USSR

MOLCHANOV, A. A., OLEKSENKO, P. F., SVECHNIKOV, S. V., and SHARADKIN, A. M.

UDC 621.383

"Regenerative Optron Theory"

Kiev, Poluprovodnikovaya tekhnika i mikroelektronika, No. 6, 1971, pp 91-100

Abstract: The optron is an optical-electronic device which, operated with positive feedback, is widely used as a basic element in many devices. The theoretical investigation of its static and dynamic operation modes is connected with the solution of algebraic or non-linear differential equations of a complex nature. The present paper analytically investigates the static and dynamic modes of the optron in regenerative optical feedback through the use of a power series approximation of the volt-brightness characteristic of the electroluminophor, with the electronic computer used at certain stages of the computation. As a result of the analysis, a condition of compatibility for the impedance moduli of the electroluminophor and the photoresistor is obtained, which can be used as the basis for engineering computations of the optron. It is

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USSR

MOLCHANOV, A. A., et al., Poluprovodnikovaya tekhnika i mikroelektronika, No 6, 1971, pp 91-100

found that the computation relationships found theoretically agree closely with the experimentally obtained expressions. The authors are connected with the Semiconductor Institute of the Ukrainian Academy of Sciences.

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USSR

UDC 621.383:546.48'23

GAVRILENKO, N. V., KLOCHKOV, V. P., SVECHNIKOV, S. V., and TORCHUN, N. M., Institute of Semiconductor, Academy of Sciences Ukrainian SSR

"Photoelectric Properties of Epitaxial Layers of $CdS_x \cdot Se_{1-x}$"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 10, Oct 70, pp 1787-1791

Abstract: The article describes results of a study of the photoelectric and electric properties of photosensitive layers of $CdS_x \cdot Se_{1-x}$ solid solutions (x = 1, 0.9, 0.7, 0.5, 0.3, 0.1) 5-20 microns thick, obtained by deposition from a molecular beam in a vacuum of the order of $5 \cdot 10^{-5}$ torr. Electron-diffraction and X-ray studies showed that at substrate temperatures of 350-420° C single-phase monocrystalline layers of CdS, $CdS_x \cdot Se_{1-x}$, CdSe with photocurrent maximums in the 510-720 nm region grow on mica. It was found that there is practically no difference between the photoelectric and electric parameters of the single-crystal layers and those of volume single crystals of the solid solutions.

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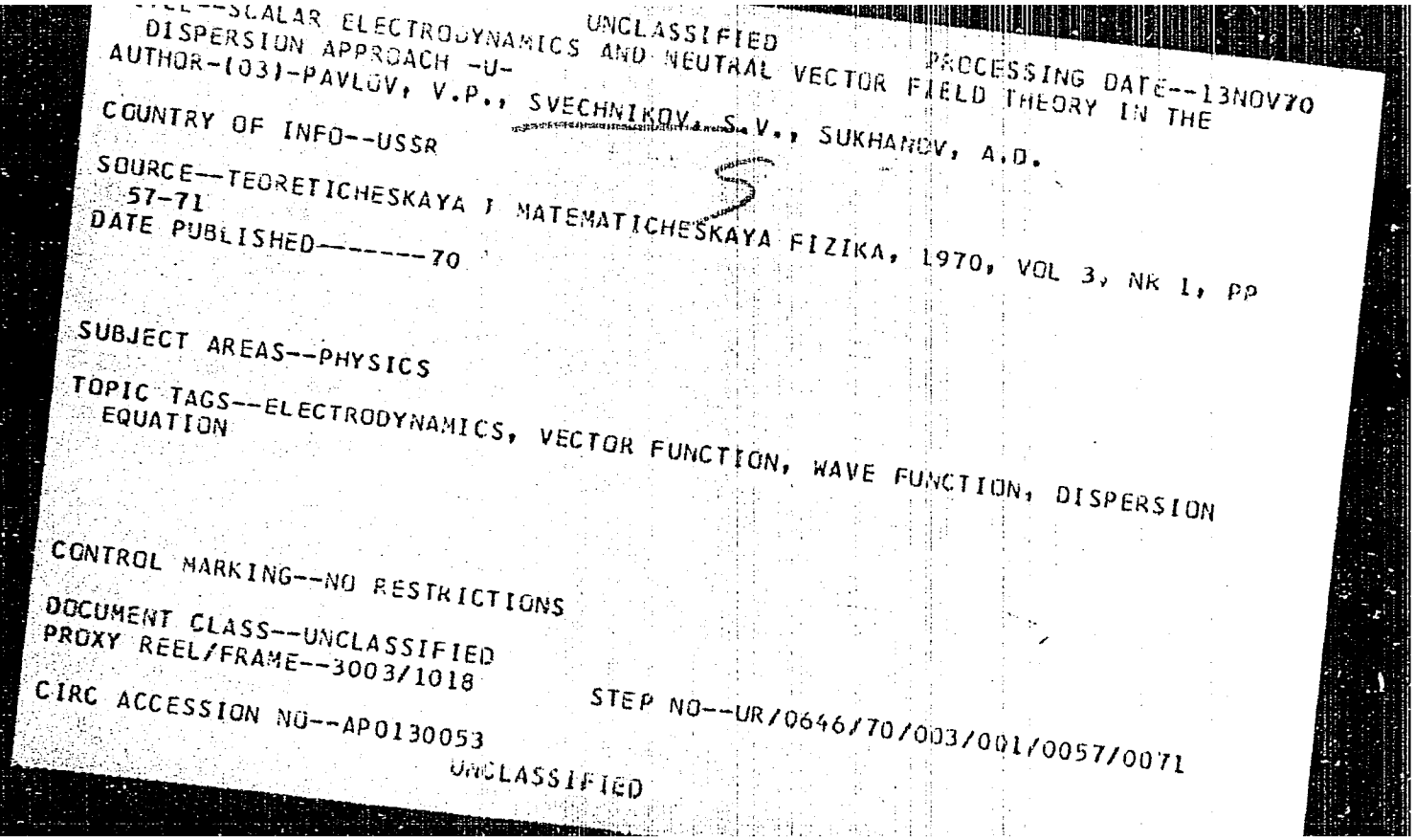


UNCLASSIFIED

--SCALAR ELECTRODYNAMICS AND NEUTRAL VECTOR FIELD THEORY IN THE DISPERSION APPROACH -U-

PROCESSING DATE--13NOV70

AUTHOR-(03)-PAVLOV, V.P., SVECHNIKOV, S.V., SUKHANOV, A.D.

COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 1, PP 57-71

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRODYNAMICS, VECTOR FUNCTION, WAVE FUNCTION, DISPERSION EQUATION

CONTROL MARKING--NO RESTRICTIONS

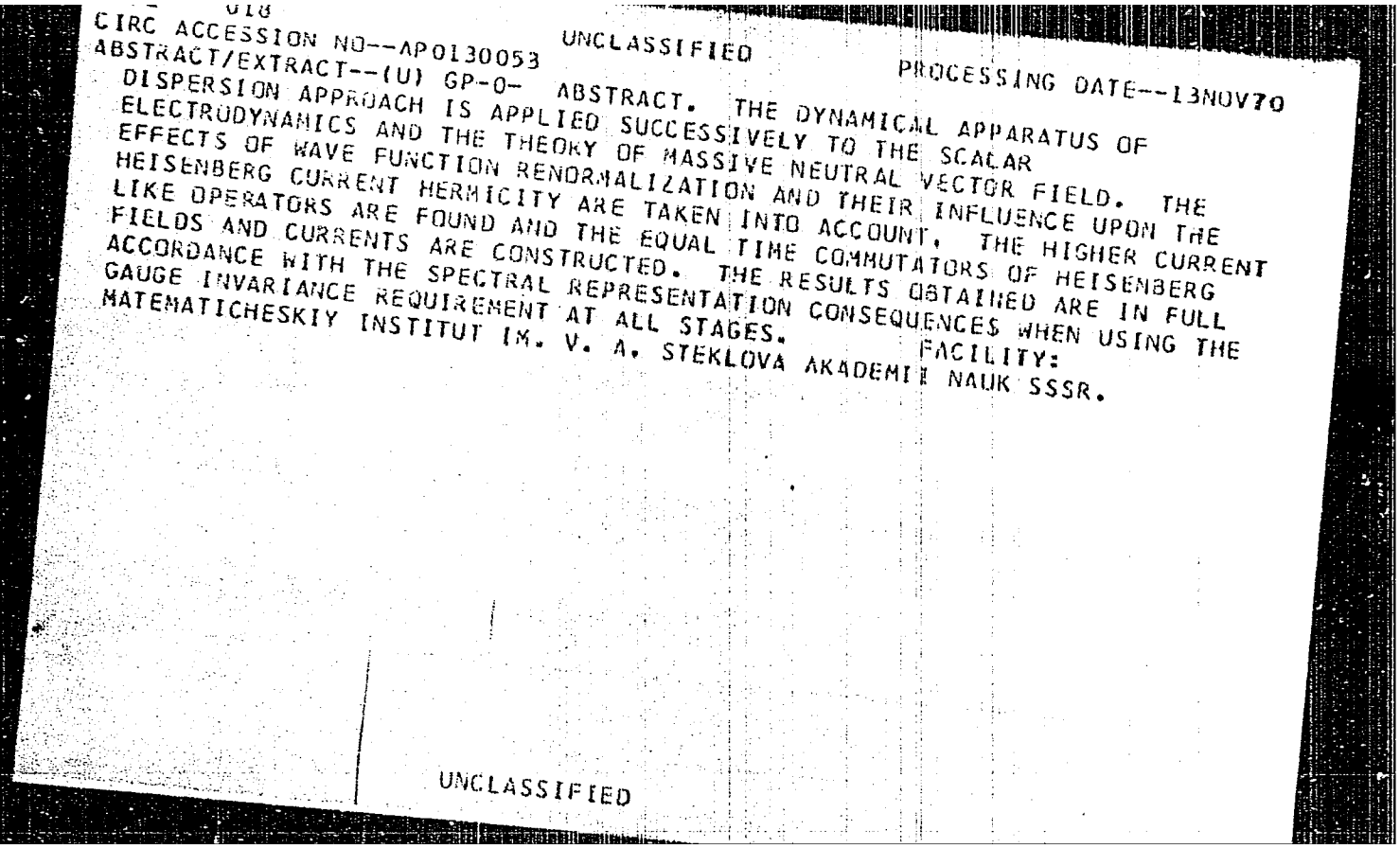
DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1018

STEP NO--UR/0646/70/003/001/0057/0071

CIRC ACCESSION NO--AP0130053

UNCLASSIFIED



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UNCLASSIFIED
CIRC ACCESSION NO--AP0130053 PROCESSING DATE--13NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DYNAMICAL APPARATUS OF DISPERSION APPROACH IS APPLIED SUCCESSIVELY TO THE SCALAR ELECTRODYNAMICS AND THE THEORY OF MASSIVE NEUTRAL VECTOR FIELD. THE EFFECTS OF WAVE FUNCTION RENORMALIZATION AND THEIR INFLUENCE UPON THE HEISENBERG CURRENT HERMICITY ARE TAKEN INTO ACCOUNT. THE HIGHER CURRENT LIKE OPERATORS ARE FOUND AND THE EQUAL TIME COMMUTATORS OF HEISENBERG FIELDS AND CURRENTS ARE CONSTRUCTED. THE RESULTS OBTAINED ARE IN FULL ACCORDANCE WITH THE SPECTRAL REPRESENTATION CONSEQUENCES WHEN USING THE GAUGE INVARIANCE REQUIREMENT AT ALL STAGES. FACILITY:
MATEMATICHESKIY INSTITUT IM. V. A. STEKLOVA AKADEMII NAUK SSSR.

UNCLASSIFIED

USSR

UDC: 621.382:012

SVECHNIKOV, S. V., SMOVZH, A. K., Institute of Semiconductors, Academy of ~~Sciences of the~~ UkrSSR

"Functional Converters Based on Photoresistors"

Kiev, Poluprovodnikovaya Tekhnika i Mikroelektronika, Resp. Mezhved. Sb., No 7, 1972, pp 31-38

Abstract: A theoretical investigation is made into the static mode of operation of functional converters based on photoresistors. The following designs of functional photoresistors are considered: 1) a photoresistor of transverse design with variable spacing between contacts; 2) a photoresistor with variable width of the light probe; 3) a photoresistor of longitudinal design with variable area of the illuminated surface. Profiles of the functional elements of the photoresistors are plotted in accordance with predetermined conversion functions. The limitations imposed on the conversion functions are determined in accordance with the chosen photoresistor designs. Errors of functional conversion are analyzed on the basis of an examination of nonhomogeneities of the photoresistive layers, and ways to reduce these errors are indicated. Experiments with functional photo-

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220008-2"

USSR

SVECHNIKOV, S. V., SMOVZH, A. K., Poluprovodn. Tekh. i Mikroelektron. Resp. Mezhved. Sb., No 7, 1972, pp 31-38

resistors showed that these devices give appreciably higher currents in the load than do functional photopotentiometers. They also can be used to reproduce functions with a wider range of slopes than photopotentiometers. An experimental verification of the proposed theoretical analysis showed that the computational procedure can be used in designing functional converters.

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USSR

UDC 546.48'23:539.238

SVECHNIKOV, S. V., SHTRUM, YE. L., KLOCHKOV, V. P., ZAV'YALOVA, L. I. and TORCHUN, N. M., Institute of Semiconductors, Academy of Sciences USSR

"Monocrystalline Layers of Cadmium Selenide"

Moscow, Izvestiya Akademii nauk SSSR, Neorganicheskiye materialy, Vol 7, No 12, Dec 71, pp 2146-2149

Abstract: This paper concerns the study of the specific properties of a single-crystal layer grown on a substrate. The experimental layer of hexagonal and a mixture of hexagonal and cubic modifications was produced by vacuum deposition of cadmium selenide on mica substrates in a quasi-closed space. The morphology of the deposited layer indicates that the surface growth of cadmium selenide layers is formed by hexagonal pyramids or triangles and hexagons. Three basic types of pyramids are observed: pyramids with pointed apexes and flat lateral faces, stepped pyramids, and truncated pyramids. A correlation was revealed between the dimensions of the grown shapes and their electric conductivity. Both the resistivity and photosensitivity of the layers increase with the increasing cross section of the pyramids. The photosensitivity of single-crystal layers comprising cubic and hexagonal modifications of CdSe is higher than that of layers with hexagonal modifications. (1 illustrations, 10 bibliographic references)

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USSR

UDC 621.383.8:621.383.4

KRASNIKOV, N. I., and SVECHNIKOV, S. V.

"Image Converter (Short Communication)"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronics Technology. Scientific-Technical Collection. Microelectronics), 1971, Issue 2(28), pp 52-54 (from RZh-Elektronika i yeye primeneniye, No 8, August 1971, Abstract No 8B325)

Translation: The structure and principles of operation are described of a solid-state image converter which makes it possible to observe the output image from the same direction as that from which the input is projected. For this goal it is proposed to use a thin film converter with different spectral characteristics of the electroluminophor (ZnS--Mn) and the photoconductor (CdS) with a condition of high transparency of the thin electroluminescent films. 3 ill. N.S.

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USSR

UDC 621.383.82

KRASNIKOV, N.I., SVECHNIKOV, S.V.

"Solid-State Amplifiers And Image Converters"

Poluprovodn. tekhn. i mikroelektronika. Resp. mezhved. sb. (Semiconductor Technology And Microelectronics. Republic Interdepartmental Collection), 1972, Issue 7, pp 17-27 (from RZh:Elektronika i yeye primeneniye, No 9, September 1972, Abstract No 9B322)

Translation: A survey is made of the contemporary state of development of solid-state amplifiers and image converters, the operation of which is based on use of the phenomena of photoconductivity and electroluminescance of semiconductors. Existing designs are considered of image amplifiers based on powder layers, and their merits and shortcomings are analyzed.The prospects are shown for construction of solid-state image amplifiers based on thin-film elements.Thin-film solid-state image amplifiers are described which use electroluminescent films of ZnSiMn deposited in a vacuum, and sintered [spechennyy] photoconducting layers based on cadmium selenide. Such amplifiers have conversion ratios up to 100,a threshold of response of 10^{-3} lux and a limiting resolution of 25 line pairs [shtr.]/mm. 12 ill. 112 ref. Annotation.

1/1

USSR UDC 621.383.4

BOGDANOVICH, V.B., KAGANOVICH, E.B., SVECHNIKOV, S.V.

"Photoresistors On A Basis Of CdS Films Chemically Precipitated From An Aqueous Solution"

Poluprovodn. tekhn. i mikroelektronika. Resp. Mezhved. sb. (Semiconductor Technology And Microelectronics. Republic Interdepartmental Collection), 1972, Issue 8, pp 91-94 (from RZh:Elektronika i yeye primeneniye, No 11, Nov 1972, Abstract No 11B319)

Translation: Raster [rastrovyy] and coordinated--sensitive photoresistors are developed on the basis of highly photosensitive CdS films. Their parameters and characteristics are presented. It is shown that according to a number of parameters the photoresistors produced surpass the industrial and favorably differ from the former by the technological reproducibility of the parameters, the low cost, and the simple production technology. 6 ill. 1 tab. 3 ref. Summary.

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USSR

SVECHNIKOV, V. N., Academician, Ukrainian Academy of Sciences, Resp. Editor

Metallofizika (Metal Physics), No 47, Kiev, "Naukova Dumka," 1973, 115 pp

Translation of Table of Contents:

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USSR

SVECHNIKOV, V. N., Metal Physics, No 47, Kiev, "Naukova Dumka," 1973, 115 pp

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USSR

USSR UDC 669.15'26:[620.193+539.5317:669.296

SVECHNIKOV, V. N., and SPEKTOR, A. TS., Institute of the Physics of Metals, Academy of Sciences USSR

"Effect of Zirconium on High-Temperature Hardness and Heat Resistance of Iron Chromium Alloys"

Metallofizika. Resp. mezhved. sb. (The Physics of Metals. Republic Interdepartmental Collection of Works), 1970, vyp. 20, pp 94-98 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3I777 by authors)

Translation: The ternary alloys of Fe-Ar- and Cr-Zr-sides containing Zr $\leq$ 35% were studied at elevated temperatures (up to 1000°) and hot-hardness curves were constructed. Heat resistance was studied in two series of alloys: Fe-rich (up to 30% Cr) and Cr-rich (up to 40% Fe). Alloying of Fe-Cr alloys with zirconium significantly increases the hardness of the alloys, especially low-chromium alloys (up to 11% Cr). With a constant quantity of Zr the maximum hardness is found in alloys containing ~20% Fe. In the 800-1000° range the best hot-hardness values are obtained for alloys with about 20% Fe and 20-35% Zr, i.e., alloys containing a significant quantity of eutectic or a mixture of beta phase and eutectic. Additions of Zr markedly improve heat resistance. 1/2

USSR

SVECHNIKOV, V. N., et al., Metallofizika, Resp. mezhved. sb., 1970, vyp. 29, pp 94-98

Among alloys of Cr-Ar-side those with additions of 20-30% Fe, 10-20% Zr may be of the greatest interest. Six illustrations. Bibliography with two titles.

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USSR

UDC 669.017.13.296.297.12.25.24

SVECHNIKOV, V. N., MARKIV, V. YA., and PET'KOV, V. V., Institute of Metal Physics, Academy of Sciences Ukr SSR and Kiev State University

"Interaction of Laves' Phases in $Zr\{Fe,Co,Ni\}_2$-$Hf\{Fe,Co,Ni\}_2$ Systems"

Kiev, Metallofizika, No 40, 1972, pp 95-97

Abstract: The interaction of Laves' phases in $Zr\{Fe,Co,Ni\}_2$-$Hf\{Fe,Co,Ni\}_2$ systems was investigated by methods of differential thermal, x-ray, and microstructural analyses. The system $ZrFe_2$-$HfFe_2$ is a quasi-binary peritectic type. It is characterized by significant solubility of hafnium in the metallide $ZrFe_2$ (approximately 21 at.% at 1500°C and almost 18 at.% at 900°C); solubility of zirconium in $HfFe_2$ is insignificant. Compounds $ZrCo_2$ and $HfCo_2$ form a continuous series of solid solutions. In the Zr-Hf-Ni system at the section of 66.7 at.% Ni of the ternary compounds no Laves' phases were detected. 2 figures, 12 bibliographic references.

1/1

USSR UDC 669.293.71.855.017.13

SVECHNIKOV, V. N., PAN, V. M., and LATYSHEVA, V. I., Institute of Metal Physics, Academy of Sciences UKrSSR

"Investigation of the Effect of Cerium on the Phase Composition and Some Properties of Niobium-Aluminum Alloys"

Kiev, Metallofizika, No 32, 1970, pp 28-33

Translation: A study was made of the effect of the most widespread rare-earth elements (cerium, lanthanum, yttrium, and praseodymium) on the mechanical properties of niobium, as well as the effect of one of them (cerium) on the phase composition and some properties of niobium-aluminum alloys. It was shown that alloying with cerium, lanthanum, yttrium, and praseodymium lowers the hardness of initial niobium by more than one and a half times, and the cold rolling of cast alloys with subsequent recrystallization annealing makes it possible to lower the hardness of initial niobium three times.

Isothermal sections of the triple niobium-aluminum-cerium

USSR

SVECHNIKOV, V. N., et al., Metallofizika, No 32, 1970, pp 28-33

system at temperatures of 1600°C and 1100°C were constructed. At the same time, a marked solubility of cerium was detected in the β and δ phases, amounting to 7.5 and 10 at.%, respectively, at 1100°C. With a rise in temperature cerium solubility in the β and δ phases is slightly lowered.

A monotonic decrease in the solidity of the β phase from 940 to 600 kg/mm^2 with an increase in the content of cerium in it, as well as a decrease in the solidity of the α-solid niobium-based solution with an increase in the content of cerium, was established.

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USSR

UDC 669.28.293.297.017.13

SVECHNIKOV, V. N., SHURIN, A. K., and ALFINTSEVA, R. A., Institute of Metal Physcis, Academy of Sciences Ukr SSR

"Investigation of Phase Equilibria in Alloys of the Molybdenum-Niobium-Hafnium System"

Kiev, Metallofizika, No 32, 1970, pp 25-27

Translation: The phase composition of molybdenum-niobium-hafnium alloys was studied by methods of metallographic, x-ray structural, and durometric analysis. Isothermal sections of a triple phase diagram at temperatures of 1800° and 1500° C were constructed. The composition's effect on the hardness and parameter of the crystal lattice of a solid solution with a body-centered cubic lattice was determined.

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USSR

UDC 669.017.11

SVECHNIKOV, V. N., and SPECTOR, A. TS., Institute of Metal Physics, Academy of Sciences Ukr SSR

"The Effect of Zirconium on the Polymorphic Region a - γ - δ in the Triple Iron-Chromium-Zirconium System"

Kiev, Metallofizika, No 32, 1970, pp 33-38

Translation: This study shows the basic features of the emergence of a polymorphic region of the a- γ - δ type near the iron-zirconium side of the triple iron-chromium-zirconium system and its experimental determination. The alloys were prepared from electrolytic iron drawn out in hydrogen and remelted in vacuum, electrolytic refined chromium, and zirconium iodide in an electric are furnace with a nonconsumable tungsten electrode on a water-cooled copper bottom in an atmosphere of purified argon. The oxygen content in the alloys after the melting did not exceed 0.06%. The basic research methods used were the microstructural, x-ray structural, dilatometric, differential-thermal, and magnetometric. It was established that in the triple iron-chromium-

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USSR

SVECHNIKOV, V. N., and SPECTOR, A. TS., Metallofizika, No 32, 1970, pp 33-38

zirconium system a closed surface, which differentiates the polynorphic region a - γ - δ from the remaining space, appears near the iron-zirconium side.

The results of this study can be extended to the triple systems F_e - C_r - M, where the third component is the element which in alloys with iron forms a system with the so-called reverse peritectic transformation.

2/2

USSR

UDC: 616.981.57-085.835.3

RATNER, G. L., NENASHEV, A. A., SVECHNIKOVA, E. L., and SMIRNITSKIY, V. V., Department of Faculty Surgery, Kuybyshev Medical Institute imeni D. I. Ul'yanova

"Hyberbaric Oxygen Therapy of Anaerobic Infections (Communication I)"

Moscow, Khirurgiya, No 1, Jan 71, pp 39-44

Abstract: Eleven patients, most of whom were in serious condition because of gas gangrene resulting from careless primary surgery, were given hyperbaric oxygen treatments before surgery and, in cases where the infection flared up, after surgery. All of the patients recovered. Three amputations were performed, not as a result of the infection, but because the extremity was nonviable due either to injury to major blood vessels or to functional insufficiency of the extremity resulting from extensive skin and muscle defects. Several of the cases are discussed in detail.

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USSR

UDC 539.12

AZIMOV, S. A., Academician of the Uzbek SSR Academy of Sciences, GULAMOV, K. G., SVECHNIKOVA, L. N., CHERNOVA, P. L., and CHERNOV, G. M., Physical-Technical Institute imeni S. V. Starodubtsev, Uzbek SSR Academy of Sciences, Tashkent

"The Coherent Generation of Particles by Protons with an Energy of 50 Gev on the Nuclei of an Emulsion"

Moscow, Doklady Akademii Nauk SSSR, Vol 212, No 6, 1973, pp 1323-1325

Abstract: This article gives values of cross-sections in 1-, 3-, and 5-beam channels of proton coherent reactions with an intermediate energy of 50 Gev and traces the energy relationships of the cross-section of 3-beam channels. Inelastic coherent reactions were selected from a total of 2568 meters of primary tracks on the assumption that the longitudinal impulse transmitted to the target nucleus is less than or equal to $\frac{1}{R_A}$, where R_A is the radius of the nucleus. These events thus yield a significantly stronger angular collimation of secondary particles than the pn-interactions among which they occur. Considering those events with one secondary charged particle in which the sine of the particle departure angle was greater than 0.015, values for N_{coh}

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AZIMOV,S. A., et al., Doklady Akademii Nauk SSSR, Vol 212, No 6, 1973, pp 1323-1325

were found: $N_{coh}^{(3)} = 65 \pm 11$, $N_{coh}^{(5)} = 10 \pm 4$, $N_{coh}^{(1)} = 41 \pm 10$. Of course, these are only lower bounds, since there are single-beam reactions among the events with a sine less than 0.015. Assuming roughly that the distribution of charged particles is the same in events with one and three particles, a value of $N_{coh}^{(1)}$ approximately equal to 55 ± 15 is obtained. Comparison of the authors' results with those of other studies for 3-beam channels shows that the cross-section for proton coherent reactions increases significantly less rapidly than for ion reactions. This is of significant interest for verifying various theoretical models of diffraction coherent particle generation.

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1/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--EFFECT OF POLYVITAMINS ON THE ADRENAL CORTEX -U-

AUTHOR-(02)-SVECHNIKOVA, N.V., LISITSKAYA, R.G.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 5, PP 44-47

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ADRENAL CORTEX, VITAMIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1730 STEP NO--UR/0475/70/000/005/0044/0047

CIRC ACCESSION NO--AP0129098

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0129098

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ELDERLY AND OLD PERSONS COURSES OF THE VITAMIN COMPLEX "VIGERIN" HAD A POSITIVE EFFECT OF THE FUNCTIONAL STATE OF THE ADRENALS NORMALIZING ITS ANDROGNEIC AND GLUCOCORTICOID FUNCTIONS. PROLONGED COURSES OF TREATMENT LEAD TO AN INCREASE OF THE URINARY AND PLASMA CONTENT OF 17,OXYCORTICOSTEROIDS. IT IS CONCLUDED THAT PERSONS OVER 60 YEARS OF AGE SHOULD BE ADVISED TO TAKE COURSES OF VITAMIN THERAPY. DOSAGE AND NUMBER OF COURSES ARE GIVEN.

FACILITY: INSTITUTA GERONTOLOGII AMN SSSR.

UNCLASSIFIED

USSR

UDC 539.4

ZOLOTUKHIN, I. V., AKININ, K. G., ABRAMOV, V. V., KETUSOV, Yu. K., SKOROBOGATOV, V. S., and SVEDOMTSEV, N. V. (Voronezh)

"Investigation of the Damping and Elastic Characteristic of Plasma Coatings of Tungsten, Nichrome, Zirconium Dioxide, and Chrome-Nickel Spinel"

Kiev, Problemy Prochnosti, No 9, Sep; 73, pp 86-89

Abstract: Consideration is given to problems connected with study of the damping and elastic characteristics of thin plasma coatings. The influence of the conditions of application and annealing of the coatings upon the value of oscillation attenuation and the modulus of elasticity. The results of investigation of the modulus of elasticity are presented in a table and in three figures. For tungsten coatings, the modulus of elasticity is characterized by considerable scattering of the values -- from $2 \cdot 10^5$ kg/cm^2 to $14 \cdot 10^5$ kg/cm^2.

The relationship of the modulus of elasticity of the coatings to the temperature, before and after annealing, is shown. Analysis of the E -- t relationships of tungsten and zirconium dioxide coatings shows that in the temperature interval from 20 to 800°C the values of the elasticity modulus E change insignificantly (within the limits of 2-10). For nichrome coatings E decreases more intensively with a temperature rise, and at t = 800°C its

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USSR

ZOLOTUKHIN, I. V., et al., Problemy Prochnosti, No 9, Sep 73, pp 86-89

values are on the average 17-23% smaller than at room temperature. 4 figures. 1 table. 14 references.

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USSR

UDC 621.398.654.93

SVENSON, A. N., and TYNNAYA, N. T., L'vov

"Efficient Coding of a Signal Transmitted over a Hydroacoustic Channel Affected by Reverberation Noise"

Kiev, Otbor i Peredacha Informatsii, No 29, 1971, pp 24-26

Abstract: A study was made of the possibility of improving high-speed digital remote control systems using hydroacoustic communications channels. The conditions are presented for obtaining the optimal binary code by pulses of the detonation type and a multiposition code by frequency pulses.

A sample calculation is made showing that because of the deterministic restrictions imposed on the possibility of using each frequency dispatch it is possible, by using a code with "floating frequencies," to develop a higher data transmission speed under reverberation conditions than with an ordinary multifrequency code.

Practical implementation of such a code presents no difficulties.

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USSR UDC 621.398.654.93

SVENSON, A. N., TYNNAYA, N. T., L'vov

"Estimating the Carrying Capacity of a Hydroacoustic Channel Affected by Non-stationary Reverberation Noise"

Kiev, Otbor i Peredacha Informatsii, No 29, 1971, pp 27-30

Abstract: A study was made of the possibility of improving the efficiency in remote control systems using a hydroacoustic communications channel. The non-stationary component of the reverberation noise affecting such a channel was taken as the factor limiting its carrying capacity. The carrying capacity of the channel is described mathematically. Its carrying capacity can be increased with a decrease in the pulse duration at the reception point. The possibility of practical implementation of this condition is discussed briefly. An experimentally obtained envelope of a pulse train obtained by linear summation with a time shift of an isolated signal of the δ-pulse type distorted on passage through the hydroacoustic channel is compared with the envelopes of the same pulse train first passed through a high-frequency filter.

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UDC 534-14

USSR

SVENSON A N., TYNNAYA, N.T.

"Concerning An Evaluation Of The Transmitting Capacity Of A Hydroacoustic Channel Affected By Unsteady Reverberation Interference"

Otbor i peredacha inform. Resp. mezhved. sb. (Selection And Transmission Of Information. Republic Interdepartmental Collection), 1971, Issue 29, pp 27-30 (from RZh--Elektronika i yeye primeneniye, No 3, March 1972, Abstract No 3A362)

Translation: The possibility is considered of an increase of efficiency in telemechanical system using a hydroacoustic communication channel. The unsteady component of reverberation interference affecting such a channel is taken as a factor limiting the transmission capacity of the channel. 3 fig. 10 ref. Summary.

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USSR

UDC 534-14

SVENSON, A. N., TYNNAYA, N.T.

"Concerning The Effective Coding Of A Signal Transmitted In A Hydroacoustic Channel Affected By Reverberation Interference"

Otbor i peredacha inform. Resp. mezhved. sb. (Selection And Transmission Of Information. Republic Interdepartmental Collection), 1971, Issue 29, pp 24-26 (from RZh--Elektronika i yeye primeneniye, No 3, March 1972, Abstract No 3A361)

Translation: The possibility is considered of increasing the effectiveness of high-speed discrete telemechanics systems using a hydroacoustic communication channel. The conditions are presented for obtaining an optimum binary code with the aid of explosive-type pulses, and a multiposition code with the aid of frequency pulses. 1 ill. Summary.

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USSR

UDC: 621.375.826

ANAN'YEV, Yu. A., GRISHMANOVA, N. I., KOVAL'CHUK, L. V., SVENTSITSKAYA, N. A., SHESTOBITOV, V. Ye.

"On the Feasibility of Controlling the Emission From Lasers With Telescopic Cavities"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 85-88

Abstract: An experimental study is made of the possibility of controlling emission from a laser with a telescopic cavity by injecting a signal from an external source into the central zone of the cavity. The necessary average power of the external signal is determined for the case where it is comprised of "spikes" of emission randomly distributed in time. Four illustrations, bibliography of nine titles.

1/1

USSR

UDC 621.378.325

KOVAL'CHUK, L.V., SVENTSITSKAYA, N.A.

"Methods Of Adjustment Of Lasers With Unstable Resonators"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11),1972,pp 80-85

Abstract: The necessary precision of arrangement of the elements of unstable resonators is discussed. Two methods of adjustment adopted in laboratory practice are described -- the autocollimation method and the method of multiple reflections. The scheme of a resonator with an adjustment device is shown for each method. The authors thank Yu. A. Anan'yev for the idea of the proposed method of multiple reflections and for his constant attention to the work, and also O.A. Shorokhov for useful council. 4 fig. 5 ref. Received by editors, 11 Oct 1971.

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Acc. Nr: AP0043766 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 3, pp 786-793

TELESCOPIC RESONATOR LASER

Anan'yev, Yu. A.; Vinokurov, G. N.; Koval'chuk, I. V.; Sventsitskaya, N. A.; Shertsobitov, V. Ye.

The properties of an unstable resonator laser with large Fresnel numbers and radiative losses are considered. The feasibility of describing some properties of such lasers in the geometric optics approximation without applying the diffraction theory of open resonators is discussed. Results are presented of an experimental study of a generator with an unstable resonator formed by a telescopic system of mirrors.

REEL/FRAME
19770173

USSR

UDC 621.375.82

ANAN'YEV, Yu. A., GRISHMANOVA, N. I., KOVAL'CHUK, L. V., SVENTSITSKAYA, N. A., SHERSTOBITOV, V. Ye.

"On the Possibility of Laser Radiation Control With Telescopic Resonators"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No. 2, Moscow, "Sov. radio", 1972, pp 85-88 (from RZh-Fizika, No 10, Oct 72, Abstract No 10D1019)

Translation: The possibility of controlling laser radiation with a telescopic resonator by introducing a signal from an external source into the central zone of the resonator was investigated experimentally. The necessary average power of the external signal when it consists of randomly distributed subpulses of radiation over time was determined. 9 ref. Authors abstract.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220008-2"

3/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--USE OF THE NUCLEAR MAGNETIC RESONANCE OF PHOSPHORUS TO STUDY EXTRACTION BY ORGANOPHOSPHORUS COMPOUNDS. I. EFFECT OF SOLVATION -U-

AUTHOR-(05)-ROZEN, A.M., BORODIN, P.M., NIKOLOTOVA, Z.I., CHIZHIK, V.I., SVENTITSKIY, YE.N.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(1), 69-76

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--PHOSPHORUS ISOTOPE, ORGANIC PHOSPHATE, URANIUM COMPOUND, NUCLEAR MAGNETIC RESONANCE, SPIN LATTICE RELAXATION, SOLVENT EXTRACTION, SOLVENT ACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1464 STEP NO--UR/0186/70/012/001/0069/0076

CIRC ACCESSION NO--AP0135135

UNCLASSIFIED

2/2 021 UNCLASSIFIED

CIRC ACCESSION NO--AP0135135 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRIME31 P CHEM. SHIFT DELTA OF BU SUB3 PO SUB4 (TBP), CH SUB3(C SUB5 H SUB11 O)SUB2 PO (DAMP) AND A TRIOCTYLPHOSPHINE OXIDE (TOPO) SOLN. IN CCL SUB4 ARE PLUS 6.3, MINUS 23.3, AND MINUS 38.0 PPM, RESP.; THE PRIME31 P CHEM. SHIFTS OF SOLVATES (DELTA SUB0) PREPD. BY SATN. OF THE ABOVE EXTRACTANTS WITH UO SUB2(NO SUB3)SUB2 ARE PLUS 4.3, MINUS 32.1, AND MINUS 63.8 PPM, RESP. THE SOLVATION SHIFT (DELTA DELTA EQUALS DELTA DELTA SUB0)WAS A LINEAR FUNCTIONOF THE NO. OF ESTER GROUPS (RO), AND THE LOG. OF THE EXTN. CONST. (LOG K) INCREASED LINEARLY WITH INCREASING DELTA DELTA, I.E. DELTA DELTA COULD BE USED AS A MEASURE OF THE EXTG. POWER OF ORG. P COMPDS. THE CHEM. SHIFTS ASSOCD. WITH THE DILN. OF THE ABOVE EXTRACTANTS (AND SOLVATES) WITH DECANE, CCL SUB4, BENZENE AND CHCL SUB3 OID NOT EXCEED 1-3 PPM. THE SPIN LATTICE RELAXATION TIMES (T SUB1) OF PRIME31 P IN TBP, DAMP, THE TBP SOLVATE AND THE DAMP SOLVATE WERE 5.8, 5,3 0.85, AND 0.33 SEC, RESP.; DILN. OF THESE EXTRACTANTS (OR SOLVATES) WITH CCL SUB4 AND CHCL SUB3 INCREASED THE T SUB1, INDICATING THE OCCURRENCE OF INTERACTION ON THE DILN.

UNCLASSIFIED

USSR

UDC: 621.317:621.373.029.42

KOLTIK, Ye. D., SVERDLICHENKO, G. D., YARALOSHVILI, R. V.

"A Random Signal Generator"

Tr. metrol. in-tov SSSR (Works of Metrology Institutes of the USSR), 1970, vyp. 117 (177), pp 109-117 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A391)

Translation: The authors describe the functional circuit of a generator of random signals in the 0.01-30 Hz range with a shaper for the form of the correlation function $R(\tau)$. Random signals in the above mentioned frequency range are produced by the method of converting noise to a generalized telegraph signal with subsequent filtration by low-frequency filters. These filters double as the correlation function shaper. The maximum error in shaping $R(\tau)$ is calculated. Four illustrations, bibliography of nine titles. Resumé.

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1/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--A DIGITAL MEASURING SYSTEM FOR AUTOMATIC INTERFEROMETRES -U-

AUTHOR-(05)-GRAPKIN, M.YA., ZORIN, D.I., KAYEKIN, V.V., SVERDLICHENKO, V.D., SHESTOPALOV, YU.N.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZMERITEL'NAYA TEKHNIKA, NO 2, 1970, PP 35-37

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--DIGITAL SYSTEM, INTERFEROMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1463 STEP NO--UR/0115/70/000/002/0035/0037

CIRC ACCESSION NO--AP0115393

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0115393

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DIGITAL MEASURING SYSTEM (DMS) IS INTENDED FOR CHECKING HATCHED MEASURES OF LENGTH UNDER DYNAMIC CONDITIONS. THE ESSENCE OF THE METHOD OF MEASUREMENTS OF THE LENGTH OF THE SUBDIVISIONS OF HATCHED MEASURES CONSISTS IN THE FACT THAT REGISTRATION OF THE ORDER OF INTERFERENCE AND FIXATION OF THE MEASUREMENT RESULTS (AT THEMOMENT THAT THE CENTER OF THE HATCH PASSES UNDER THE AXIS OF THE SLIT OF A PHOTOELECTRIC MICROSCOPE) TAKES PLACE DURING A CONSTANT CHANGE OF THE OPTICAL DIFFERENCE OF THE COURSE OF RAYS IN THE INTERFEROMETER. IN ACCORDANCE WITH THIS, THE FUNCTIONAL LAYOUT OF THE DMA CONSISTS OF A PHOTOELECTRIC DEVICE FOR MEASURING THE ORDER OF INTERFERENCE AND A DEVICE FOR REGISTERING THE MOMENT THAT THE CENTER OF THE HATCH PASSES UNDER THE AXIS OF THE SLIT OF THE PHOTOELECTIC MICROSCOPE FOR OUTPUT OF THE SIGNAL OF RECORDING OF THE MEASUREMENT RESULT. THE BASIC METROLOGICAL AND TECHNICAL PARAMETERS OF THE DMS ARE PRESENTED.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--OPTIMIZATION OF THE RECIPROCAL AMBIGUITY FUNCTION IN A GIVEN REGION
-U-
AUTHOR-(02)-DOLGOCHUB, V.T., SVERDLIK, M.B.

COUNTRY OF INFO--USSR

SOURCE--KIEV, IZVESTIYA VUZOV SSSR-RADIOELEKTRONIKA, VOL 13, NO 2, 1970, PP 186-191
DATE PUBLISHED--------70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--FILTER CIRCUIT, ELECTRIC FILTER, PULSE SIGNAL, RADAR SIGNAL, RADIO SIGNAL, ANTENNA SIDE LOBE, SIGNAL PROCESSING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/0151 STEP NO--UR/0452/70/013/002/0186/0191

CIRC ACCESSION NO--AP0110117
UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0110117

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBLEM OF REDUCING THE LEVEL OF THE AMBIGUITY FUNCTION SURFACE IS AN IMPORTANT ONE IN RADAR AND RADIO COMMUNICATION. THIS IS TRUE ALSO OF THE RECIPROCAL AMBIGUITY FUNCTION, OPTIMIZATION OF WHICH IS ATTAINED BY PROPER CHOICE OF PULSE RESPONSE OF THE FILTER. THIS PAPER PROPOSES A METHOD FOR DESIGNING THE FILTER WHICH MAXIMIZES THE RATIO OF THE PEAK MODULUS SQUARED TO THE SUM OF THE SQUARES OF THE SIDE LOBES IN AN ARBITRARY ZONE OF THE RECIPROCAL AMBIGUITY FUNCTION. THIS METHOD IS APPLICABLE TO ANY SIGNAL, AND TO SIGNALS SHIFTED IN FREQUENCY WITH RESPECT TO THE CENTER FREQUENCY OF THE FILTER. FOR CONVENIENCE, THE INPUT SIGNAL, THE FILTER'S PULSE RESPONSE AND THE RECIPROCAL AMBIGUITY FUNCTION ARE PUT IN MATRIX FORM. USING THIS TYPE OF COMPUTATION, A METHOD IS DEVELOPED FOR FINDING THE MAXIMUM RESPONSE OF THE FILTER TO PULSE SIGNALS.

UNCLASSIFIED

USSR

UDC 621.391

DOLGOCHUB, V. T. and SVERDLIK, M. B.

"Optimization of the Reciprocal Ambiguity Function in a Given Region"

Kiev, Izvedtiya Vuzov SSSR-Radioelektronika, Vol 13, No 2, 1970, pp 186-191

Abstract: The problem of reducing the level of the ambiguity function surface is an important one in radar and radio communication. This is true also of the reciprocal ambiguity function, optimization of which is attained by proper choice of pulse response of the filter. This paper proposes a method for designing the filter which maximizes the ratio of the peak modulus squared to the sum of the squares of the side lobes in an arbitrary zone of the reciprocal ambiguity function. This method is applicable to any signal, and to signals shifted in frequency with respect to the center frequency of the filter. For convenience, the input signal, the filter's pulse response and the reciprocal ambiguity function are put in matrix form. Using this type of computation, a method is developed for finding the maximum response of the filter to pulse signals.

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USSR

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UDC 621.791.052:539.4.001.24:669.71'5

POSPELOV, K. S., CHERNYAK, A. Ya., and SVERDLIN, A. V.

"Properties of V92Ts Alloy Weld Joints After Prolonged Heating at 70° C"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 11, Nov 70, pp 35-44

Abstract: Weld joints from the V92Ts alloy of the Al-Zr-Mg system were used in an investigation of the effect of prolonged heating at 70° C over a period of 1,000 and 3,000 hrs on the mechanical properties, susceptibility to cracking during bending impact, overall corrosion resistance, and tendency to cracking under stress. During aging at 20° C before and after welding, heating at 70° C over a period of 1,000 hrs increases the tensile strength of weld joints, especially with the use of V92sv and No 11 additive rods and less so with the use of AMg4Ts and AMg6 rods. After interrupted aging additional heating has practically no effect on tensile strength. Additional heating increases the crack susceptibility along the seam and fusion zone and also of the basic metal. Prolonged heating at 70° C over a period of 1,000 hrs after tempering at 200° C 2-4 hrs does not lead to stress corrosion. Weld joints from No 11 welding rods have the lowest susceptibility to corrosion under stress and those of AMg6 -- the highest.

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USSR

UDC 669.71:621.035

TOVSTENKO, A. F., CHALIK, S. M., GORELIK, A. Ya., LITVINOV, Ye. V., SVERDLIN, V. A.

"Study of New Types of Raw Materials for the Production of the Anode Mass"

Tr. Vses. N-i. i Proyektn. In-ta. Alyumin., Magn. i Elektrodn. prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 71, pp. 10-20. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G155 by the authors).

Translation: A description is presented of various carbon materials used in the production of anode mass. The task of their classification is stated. The stages in the development of the production of raw materials in the USSR and its study at the All-Union Institute for Aluminum, Magnesium and Electrode Industry are studied. The types of cokes and pitches studied are listed and briefly described, and their promise for utilization is estimated. A bibliography of published works performed by the Institute together with other institutions on the investigation of carbon-based raw material is presented.

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USSR

UDC 616.2-036.11-022.6-078.73:576.8.073.4

KAPLAN, A. S., SVERDLOV, A. B., and ANDREYEVA, L. A., Virological Laboratory at the Leningrad Municipal Sanitary Epidemiological Station

"Use of the Immunofluorescent Method for Diagnosis of Acute Respiratory Infections"

Moscow, Voprosy Virusologii, No 5, Sep/Oct 72, pp 625-627

Abstract: The investigation was conducted on 426 adults and 580 children hospitalized with acute respiratory diseases. Nose swabs for immunofluorescent (IM) analysis were taken during the first 3 days of the disease, and blood samples for serological tests were collected twice: immediately and 7-14 days later. The IF method yielded positive results in 8.0-27.2% of the patients, depending on the age group and virus type. At the same time, serological tests yielded positive results in only 7.2-21.4%. The difference was especially large in the youngest children, whose immunological reactivity is generally weaker than that of adults. The results obtained by the two methods coincided in only 41.1-55% of the cases. The weighed result was in each case higher than either single result. For example, A2 influenza virus was identified in 14.3-21.3% by the serological method, in 17.3-23.0% by the IF method, and in 23.7-30.9% by the combined method. The same is true of influenza B, parainfluenza, and adenovirus. The combined method is recommended for early and correct diagnosis of respiratory infections of viral origin.

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USSR

UDC 577.15:539.12.04

NOSKIN, L. A., SVERDLOV, A. G., and FOMICHEV, V. N., Leningrad Institute of Nuclear Physics, USSR Academy of Sciences

"Mechanism of Protection of Glutamic Acid Dehydrogenase by Mexamine Against Gamma Irradiation"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 3, 1973, pp 733-736

Abstract: Inactivation of glutamic acid dehydrogenase in relation to the radiation dose was exponential, but the extent of inactivation was exponentially dependent on the inverse concentration of the enzyme. The addition of mexamine (5-methoxytryptamine) to the enzyme prior to irradiation had a markedly protective effect, as manifested by a change in the angle of slope of the exponent on the dose curve. When the concentration of the irradiated enzyme was kept constant while that of mexamine was varied, saturation of the radioprotective effect occurred at a certain concentration of the compound. The concentration that resulted in saturation was independent of the radiation dose. The mechanism of the protective effect of mexamine is assumed to be based on the latter's binding to the most radiosensitive portions of the glutamic acid dehydrogenase molecule and to protection of these portions from inactivation by the radicals formed during irradiation.

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USSR

SVERDLOV, A. G., MARTYNCHIK, Yu. F., BOGATYREV, A. V., and YARKOVETS, A. G.

"The Effect of Increased Atmospheric Pressure on the Protective Effect of Some Radioprotectors"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 1, 1971, pp 220-222

Abstract: Although the mechanism of chemical protection against ionizing radiation is still unexplained, the prevailing hypothesis implicates the hypoxic effect of basic radioprotectors. Yet there is mounting evidence that does not correspond to this hypothesis, including results of research on the protective effectiveness of radioprotectors in conditions of increased oxygen partial pressure (pO_2) in tissues. The protective effectiveness or radioprotectors of various classes was studied under conditions of increased atmospheric pressure, and the effect of radioprotectors on pO_2 in mouse spleen and muscle was observed. The dose power of Co^{60} irradiation was 9.9 r/min. Doses of 1,000 r ($DL_{80/30}$) were administered. Twenty percent of the mice survived, apparently because of prolonged irradiation (101 min). The muscle and spleen pO_2 were measured during irradiation in batches of 20 mice. The mice were closely confined, obviating tying and narcosis. Indicators were

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SVERDLOV, A. G., et al, Doklady Akademii Nauk SSSR, Vol 196, No 1, 1971, pp 220-222

platinum electrodes, open type, 0.2 mm in diameter, inserted in the hip muscle and spleen: inert silver chloride electrons were inserted into the rectum. Radioprotectors were intraperitoneally injected in the following mg/kg doses: mexamine 50; cystamine 150; cystaphos 350, aminoethylisothiuronium (AET) 150. Pressure was increased after 10 minutes. Irradiation was begun in the 6th min at 7 atm. After injection of protectors into the spleen, changes in pO_2 levels occurred which were specific for each preparation. Mexamine, in the first 10 minutes, produces pO_2 decrease of 50% and cystamine and AET -- 30%, while cystaphos slightly raises pO_2 by about 5%. As pressure increased, tissue pO_2 also increased. The pO_2 increase continues for 5-10 minutes at a maximum, exceeding initial values 2-3 times, and remains at this level. During decompression pO_2 shifts are reversed, so that at normal atm spheric pressure the pO_2 returns to initial level. This suggests that the hypoxic action of the radio protector is masked by increased atm spheric pressure, but can again be observed at normal pressure. Test results for muscle are analogous to those for the spleen. It was found that the protective effect

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USSR

SVERDLOV, A. G., et al, Doklady Akademii Nauk SSSR, Vol 196, No 1, 1971, pp 220-222

of all radioprotectors at increased pressure remained the same as at normal pressure, despite the sharp rise of tissue pO_2 during irradiation. Some of the results are statistically unreliable. Thus hypoxia does not decrease the radioprotective effect in the examined compounds.

USSR

UDC 577.391:612.273

SVERDLOV, A. G., MARTYNCHIK, Yu. F., and YARKOVETS, A. G., Physical-Technical Institute imeni A. F. Ioffe, Academy of Sciences USSR, Leningrad

"Study of the Relationship Between the Hypoxic and Protective Effects of Some Radioprotective Agents"

Moscow, Radiobiologiya, No 2, 1972, pp 221-228

Abstract: Mice were treated with various protective agents (serotonin, mexamine [a serotonin analog], cysteamine, AET, α-methyltryptamine, and some other drugs) to determine their effects on pO_2 in the spleen and muscles and the relationship of these parameters to the survival time of the animals after single whole-body irradiation at 700 r. Mexamine and serotonin lowered the pO_2 level of the tissues studied but there was no correlation with the protective effect of the indolylalkylamines, for large doses had the same effect as moderate ones, even though the former produced hyperoxia and the latter hypoxia. An antagonist of these agents, α-methyltryptamine, injected 30 min prior to mexamine, did not protect the animals despite the hypoxic effect induced by the serotonin analog. Sulfur-containing agents like cystamine and AET decreased pO_2 in some animals and increased it in others, but the postirradiation survival time was the same in both groups. Thus, there is

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USSR

SVERDLOV, A. G., et al., Radiobiologiya, No 2, 1972, pp 221-228

no relationship between the hypoxic and protective effects of substances like mexamine and serotonin and their mechanism of action is obviously not based on hypoxia alone. And in the case of sulfur-containing compounds its role is insignificant.

2/2

USSR

UDC 539.4

SVERDLOV, A. I. and KARGAL'SKIY, V. A.

"Reliability Estimates of Composite Materials Structures From Static Test Results"

Moscow, Prochnost' i Ustoychivost' Tonkostennykh Aviatsionnykh Konstruktsiy, 1971, pp 216-220

Abstract: The subject structures consist of alternating layers of metal and glass reinforced plastic bonded together.

It is desired to verify the design load carrying capacity of the structures by static tests. The aging of the plastic due to temperature, humidity and radiation is taken into account by testing to destruction 10-15 specimens aged for different periods of time. The results of these tests are correlated by the theory of probabilities.

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USSR

SVERDLOV, A. I. and KARGAL'SKIY, V. A., Prochnost' i Ustoychivost' Tonkostennykh Aviatsionnykh Konstruktsiy, 1971, pp 216-220

It is recommended to test the structure statically under the load equal to the design load increased in the ratio of the original specimen strength to the aged specimen strength.

2/2

USSR

UDC 681.32.001

SVERDLOV, A. S., BERG. I. V.

"Parasitic Parameters of a Diode-Magnetic Decoder"

Elektron. Tekhnika. Nauch. - Tekhn. Sb. Microelektronika [Electronic Technology. Scientific-Technical Collection. Microelectronics], No. 5 (26), 1970, pp 90-97. (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 5, 1971, Abstract No. 5b143 by TR).

Translation: One source of noise in the output circuits of memory units is the address current decoder of the magnetic operative memory. This property becomes stronger as accumulators are miniaturized. The mechanism of formation of noise in a diode-magnetic decoder is studied. It is demonstrated on the basis of analysis of the decoder matrix and the parasitic capacitances of its elements that the parasitic parameters of the decoder are described by a set of 6 equivalent capacitances. 4 figs.

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USSR

UDC: 621.374.5(088.8)

SVERDLOV, A. S.

"A Gasket for an Electromagnetic Delay Line"

USSR Author's Certificate No 269198, filed 28 Feb 69, published 3 Aug 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G244 P)

Translation: This Author's Certificate introduces a gasket for a delay line based on ferrite transfluxor plates. To improve the electrical and structural parameters of the delay line, the gasket is made of ceramic, and one of its surfaces is metallized.

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USSR

UDC: 621.374.5(088.8)

SVERDLOV, A. S.

"An Electromagnetic Delay Line"

USSR Author's Certificate No 259989, filed 18 May 67, published 4 Aug 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G243 P)

Translation: This Author's Certificate introduces a delay line which is miniaturized with improvement of frequency parameters by using ferrite transfluxor plates with a printed circuit winding passing through all holes in the plates. The plates are separated by metal gaskets which are electrically interconnected.

1/1

USSR

UDC: 621.359.4

KAMCHUGOV, V. A., SVERDLOV, A. S.

"Highly Effective Air Filters"

Elektron. tekhnika. Nauch.-tekhn. sb. Tekhnol. i organiz. proiz-va (Electronic Technology. Scientific and Technical Collection. Technology and Organization of Production), 1970, vyp. 6(38), pp 93-97 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V432)

Translation: Highly effective air filters are developed for cleaning the incoming air in enterprises of the radio electronic industry. The disadvantages of the existing typical cleaning system and the reasons for its unsatisfactory operation are considered. Data are given on filters, their design, filtering materials and economic effectiveness. A report is given on the results of experimental use. Resumé.

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USSR

UDC: 621.317.7(088.8)

SVERDLOV, A. S.

"A Method of Measuring the Parameters of Voltage Pulses"

USSR Author's Certificate No 256071, filed 28 May 68, published 24 Mar 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11A283 P)

Translation: The following change is introduced into the conventional method of measuring pulse parameters with the use of an integrating circuit made up of a capacitor and a resistor. A square pulse of reverse polarity and constant length which coincides in time with the pulse to be measured is fed to the integrating capacitor. The change in amplitude of the square pulse completely compensates the charge on the capacitor from the measured pulse, and the area is measured from the amplitude of the square pulse. This makes it possible to measure the area of any pulse in the train with any program for their sequence. E. L.

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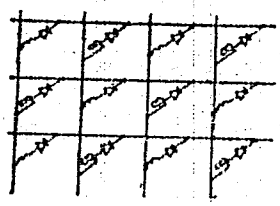
USSR UDC: 681.325.53

SVERDLOV, A. S., LASHEVSKIY, R. A.

"A Diode-Magnetic Decoder"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 4, Feb 71, Author's Certificate No 292154, Division G, filed 1 Sep 69, published 6 Jan 71, p 130

Translation: This Author's Certificate introduces a diode-magnetic decoder for an operative accumulator. At each junction are windings of coordinate transformers connected to the coordinate lines and diodes. As a distinguishing feature of the patent, transformer-capacitive interference is reduced by connecting the initial and terminal ends of the primary windings of transformers for adjacent junctions to the coordinate lines and diodes in alternating order.



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1/2 036 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EXPERIMENTAL AND THEORETICAL STUDY OF THE ABSOLUTE INTENSITIES OF BANDS IN THE TETRAHYDROFURAN INFRARED SPECTRUM -U-

AUTHOR-(04)-YEVSEYEVA, L.A., FINKEL, A.G., SVERDLOV, L.M., PRONINA, L.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(2), 301-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--IR SPECTRUM, FURAN, CALCULATION, CHEMICAL PURITY, VIBRATION FREQUENCY, DEUTERIUM COMPOUND, ELECTROOPTIC EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1244 STEP NO--UR/0368/70/012/002/0301/0305

CIRC ACCESSION NO--AP0116706

UNCLASSIFIED

2/2 036 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116706

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ABS. INTENSITIES OF BANDS IN THE IR SPECTRUM OF TETRAHYDROFURAN (I) WERE CALCD. THEORETICALLY AND MEASURED EXPTL. THE PURITY OF I WAS SIMILAR TO 99PERCENT. BY USING THE DATA, A SYSTEM OF ELECTROOPTICAL PARAMETERS OF I AS WELL AS VIBRATION COORDINATES ARE PRESENTED. EXPTL. AND CALCD. FREQUENCIES AND CALCD. INTENSITIES FOR DEUTERATED I ARE ALSO GIVEN.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ENERGY OF THE FIRST STOKES COMPONENTS IN THE STIMULATED RAMAN SPECTRA OF SOME LIQUIDS -U-

AUTHOR-(04)-SHVEDOVA, N.D., GERASIN, A.P., SIVOLOBOV, V.V., SVERDLOV, L.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(2), 270-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--RAMAN SPECTRUM, PULSE EXCITATION, BENZENE, CYCLOHEXANE, ACETYLENE HYDROCARBON, EXCITATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1237 STEP NO--UR/0368/70/012/002/0270/0273

CIRC ACCESSION NO--AP0116699

UNCLASSIFIED

CIRC ACCESSION NO--AP0116699 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF THE ENERGY OF THE EXCITING PULSE AND CELL WIDTH ON THE ENERGY OF THE FIRST STOKES COMPONENTS OF THE STIMULATED RAMAN SPECTRA OF BENZENE (I) (992CM PRIME NEGATIVE1), CYCLOHEXANE (II) (2846 CM PRIME NEGATIVE1), AND PHENYLACETYLENE (III) (1002 AND 2102 CM PRIME NEGATIVE1) WERE EXAMD. THE DATA SHOW THAT, AT LOW VALUES OF THE ENERGY OF EXCITING LIGHT, THE ENERGY OF THE FIRST STOKES COMPONENTS INCREASES MONOTONICALLY. THE RAMAN SPECTRA THRESHOLD DETD. FROM EXPTL. DATA WAS P EQUALS 1.5 FOR III AND 2.5 FOR II RELATIVE TO I. AN INCREASE OF CELL WIDTH CAUSED A DECREASE OF THE STIMULATED RAMAN SPECTRA THRESHOLD. THE ENERGY OF THE FIRST STOKES COMPONENTS INCREASED MONOTONICALLY WITH THE ENERGY PULSE INCREASE FOR CELLS OF 10, 20, 40, AND 80 MM WIDTH. FOR CELLS OF 350 MM WIDTH THIS INCREASE CEASED AT HIGHER ENERGIES OF EXCITATION. IN THIS CASE (WITH 350 MM CELL) THE ENERGY OF THE SECOND STOKES COMPONENT INCREASED SIGNIFICANTLY REACHING A HIGHER VALUE THAN FOR THE FIRST ONE.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220008-2"

2/2 028 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0132248
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SYSTEM OF ELECTROOPTICAL PARAMETERS CHARACTERIZING THE POLAR PROPERTIES OF THE BONDS OF ACROLEIN (I) IN THE GASEOUS PHASE, WAS CALCD. BY USING THE EXPTL. VALUES OF THE ABS. INTENSITIES OF THE IR SPECTRAL BANDS OF I, AND THE VALUE OF ITS DIPOLE MOMENT. THE EXPTL. VALUES OF THE INTENSITIES AGREED WELL FOR ALL THE BANDS WITH THE CALCD. ONES. THE VECTOR SUM OF THE ESTD. BOND MOMENTS (3.19 D) IS CONSISTENT WITH THE EXPTL. VALUE OF THE DIPOLE MOMENT OF I (3.11 D). THE EFFECT OF CONJUGATION OF THE ALDEHYDE AND VINYL GROUP IN I THE ELECTROOPTICAL PARAMETERS WAS STUDIED.
FACILITY: SARATOV. POLITEKH. INST., SARATOV, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--EXPERIMENTAL AND THEORETICAL STUDY OF ABSOLUTE INTENSITIES AND DEPOLARIZATIONS IN THE RAMAN SPECTRAL LINES OF POLYATOMIC MOLECULES. IX.

AUTHOR-(03)-KATS, S.M., VAKHLYAYEVA, V.I., SVERDLOV, L.M.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(4), 56-61

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--RAMAN SPECTRUM, DEUTERIUM COMPOUND, BROMINATED ORGANIC COMPOUND, CALCULATION, ANISOTROPY, CHEMICAL LABORATORY EQUIPMENT/(U)DFS12 INSTRUMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0842 STEP NO--UR/0139/70/013/004/0056/0061

CIRC ACCESSION NO--AT0137870

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AT0137870

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABS. INTENSITIES OF THE RAMAN SPECTRA LINES OF MECOBR (I) AND CD SUB3 COBR WERE MEASURED AND THEORETICALLY CALCD. AND SYSTEM OF ELECTROOPTICAL PARAMETERS CONCERNING C:O, C,C, AND C,H BONDS CALCD. THE SPECTRA WERE RECORDED WITH DFS,12 INSTRUMENT WITH DIFFRACTION LATTICE OF 600 LINES-MM. AT 300DEGREESK. THE MATH. METHOD OF CALCN. AND RESULTING ELECTROOPTICAL PARAMETERS ARE GIVEN. THE COMPARISON OF CALCD. AND EXPTL. DATA FOR ABS. INTENSITIES AND DEPOLARIZATION DEGREE SHOWED GOOD COINCIDENCE. THE DATA SHOWED THAT ANISOTROPY OF C"O BOND OF I IS LOWER THAN THE SAME IN MECOCL (II), AND THAT IN THE SERIES ACH, II AND I, THE INCREASE OF TRACE TENSOR OF DERIV POLARITY OF C,C BOND (2.97, 3.9, AND 4.7 ANGSTROM, RESP.) WAS OBSD.

FACILITY: SARATOV. POLITEKH. INST., SARATOV, USSR.

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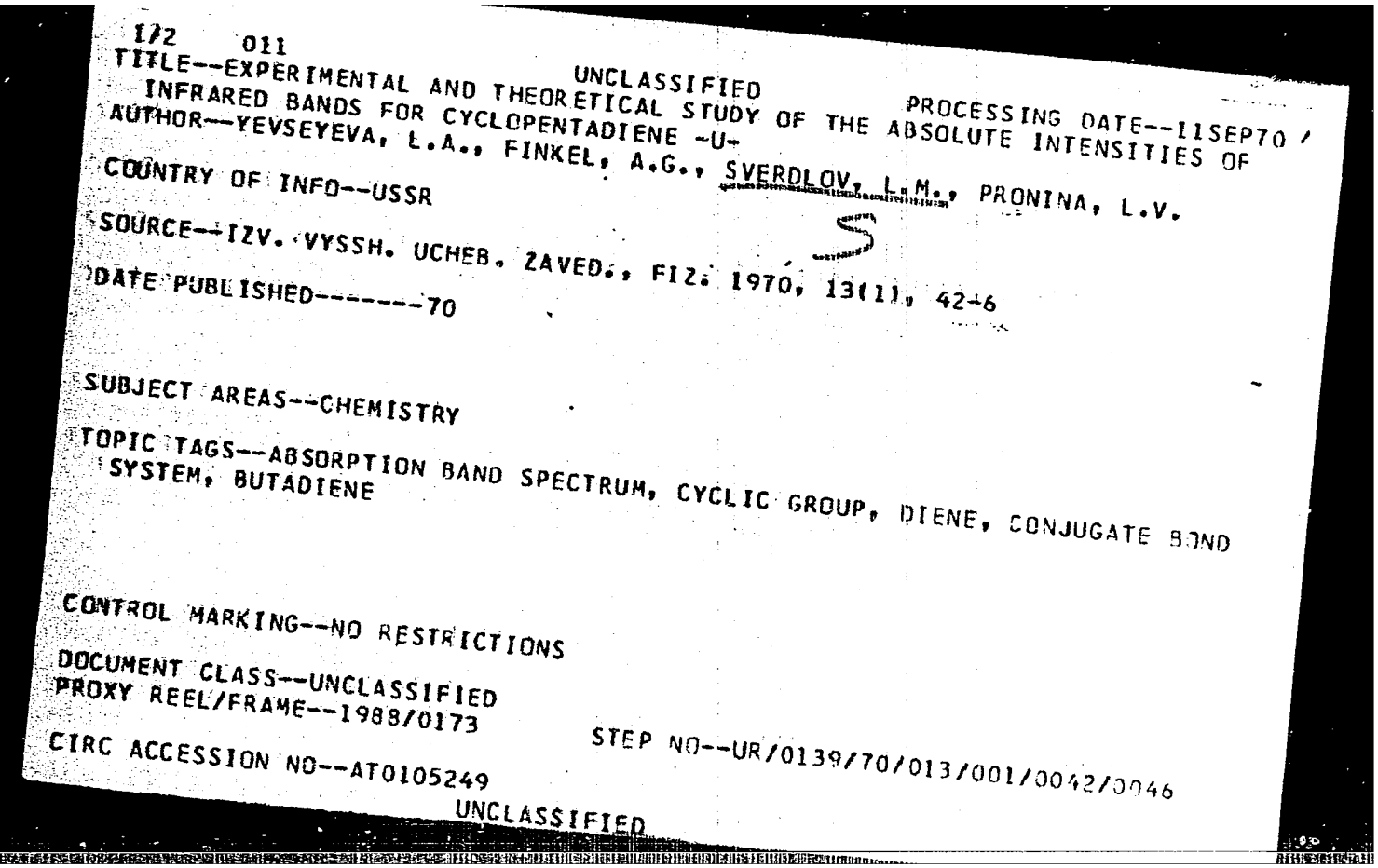

1/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--EXPERIMENTAL AND THEORETICAL STUDY OF THE ABSOLUTE INTENSITIES OF INFRARED BANDS FOR CYCLOPENTADIENE -U-
AUTHOR--YEVSEYEVA, L.A., FINKEL, A.G., SVERDLOV, L.M., PRONINA, L.V.
COUNTRY OF INFO--USSR
SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(1), 42-6
DATE PUBLISHED-------70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ABSORPTION BAND SPECTRUM, CYCLIC GROUP, DIENE, CONJUGATE BOND SYSTEM, BUTADIENE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0173
STEP NO--UR/0139/70/013/001/0042/0046
CIRC ACCESSION NO--AT0105249
UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AT0105249

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VALUES OF INTEGRATED INTENSITIES OF THE IR ABSORPTION BANDS IN THE SPECTRA OF CYCLOPENTADIENE (I) WERE CALCD. BY MEANS OF ELECTROOPTICAL PARAMETERS; A GOOD AGREEMENT WITH EXPTL. VALUES WAS OBTAINED. POLAR PROPERTIES OF THE CH BONDS, NEIGHBORING THE C:C BOND, CHANGE LITTLE DURING THE TRANSITION FROM SIMPLE OLEFIN MOLS. TO THOSE POSSESSING CONJUGATE C:C BONDS EITHER OF THE I,3,BUTADIENE OR I AND C SUB6 H SUB6 TYPES. OWING TO THE EFFECT OF HETEROATOM, THE DMUCH-DQCH VALUES CHANGE CONSIDERABLY AND THE STRETCHING BAND INTENSITIES DECREASE WHILE THE DIPOLE MOMENT OF THE CH BONDS AND BAND INTENSITIES OF THE OUT OF PLANE VIBRATIONS CHANGE LITTLE IN THE SERIES I, THIOPHENE, AND FURAN. THE CH BOND PROPERTIES OF THE CH SUB2 GROUPS IN I DIFFER SOMEWHAT FROM THOSE OF BOTH THE CH SUB2 AND :CH SUB2 GROUPS IN SATD. AND UNSATD. COMPDS., RESP.; IT IS ATTRIBUTED TO THE EFFECT OF THE C:C BONDS. QUASI AROMATIC CHARACTER OF THE RING CAUSES INTENSITY DECREASE OF THE I VIC:C) BOND, IN COMPARISON WITH 1,3, BUTADIENE.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--A FIVE CHANNEL SEMICONDUCTOR THERMOMETER WITH THERMISTORS -U-

AUTHOR-(03)-PROTODYAKONOV, V.A., SVERDLOV, V.I., TELESHEVSKIY, V.I.

COUNTRY OF INFO--USSR

SOURCE--PRIBORY I SISTEMY UPRAVLENIYA, 1970, NR 3, PP 46-47

DATE PUBLISHED-------70

SUBJECT AREAS--METHODS AND EQUIPMENT, PHYSICS

TOPIC TAGS--THERMOMETER, THERMISTOR, SEMICONDUCTOR DEVICE/(U)MT54 THERMISTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1649

STEP NO--UR/0445/70/000/003/0046/0047

CIRC ACCESSION NO--AP0136910

UNCLASSIFIED

2/2 022 UNCLASSIFIED

CIRC ACCESSION NO--AP0136910 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ORDER TO OVERCOME THE PROBLEM OF THE NONLINEAR RELATIONSHIP BETWEEN RESISTANCE AND TEMPERATURE IN THERMISTORS, AN IMPROVED INSTRUMENT HAS BEEN DESIGNED TO INCREASE THE DYNAMIC MEASUREMENT RANGE OF THE UNIT WITHIN THE 17.3-25.8 C TEMPERATURE RANGE. THIS RANGE IS BROKEN DOWN INTO FIVE SUBRANGES WITH ONE MT-54 THERMISTOR FOR EACH, WHICH CAN BE TURNED ON SEQUENTIALLY FOR MEASUREMENT AT FIVE DIFFERENT POINTS IN SPACE. THE MEASUREMENT BRIDGE IS POWERED BY A 2.5 VOLT 50 CYCLE STABILIZED SOURCE. THE INSTRUMENT'S SENSITIVITY FOR THE INDICATED RANGE IS 160 MU A-C. THRESHOLD SENSITIVITY IS 0.01 C, AND MEASUREMENT ACCURACY IS PLUS OR MINUS 0.02 C. LINEARITY FOR EACH OF THE FIVE MEASUREMENT CHANNELS IS NO WORSE THAN 0.5PERCENT.

UNCLASSIFIED

USSR

UDC 547.591.623:547.853.7'854.2/8:547.963.32

SVERDLOV, YE. D., KRAPIVKO, A. P., BUDOVSKIY, E. I., Institute of the Chemistry of Natural Compounds, Academy of Sciences USSR, Moscow

"Tautomeric Equilibrium of 1-β-D-Ribofuranosyl-2-keto-4-(N-methoxyamino)-pyrimidine"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 9, Sep 71, pp 1264-1267

Abstract: The authors studied the tautomeric equilibrium of 1-β-D-ribofuranosyl-2-keto-4-(N-methoxyamino)pyrimidine. Determination of the tautomeric equilibrium constants of the compound was based on the comparison of ionization constants of fixed tautomeric forms, viz. 1-β-D-ribofuranosyl-2-keto-3-methyl-4-(N-methoxyamino)pyrimidine and 1-β-D-ribofuranosyl-2-keto-4-(N-methyl-N-methoxyamino)pyrimidine. The pK_a values of these compounds, determined spectrophotometrically, indicate that tautomeric equilibrium between the oxime and hydroxyamine forms of 1-β-D-ribofuranosyl-2-keto-4-(N-methoxyamino)pyrimidine in aqueous solutions is shifted towards the oxime form ($K_T \simeq 25$).

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Genetics

USSR

UDC 575.24

BUDOVSKIY, E. I., KRIVISKIY, A. S., SVERDLOV, YE. D., and SHERBAN, T. P., Institute of Chemistry of Natural Compounds, Academy of Sciences USSR, and Institute of Molecular Biology, Academy of Sciences USSR

"The Effect of Mutagens on Bacteriophage MS2 and Its Infectious RNA. III. The Effect of O-Methylhydroxylamine. Analysis of the Kinetics of Inactivation"

Moscow, Genetika, No 1, 1971, pp 120-129

Abstract: Study of the inactivation of bacteriophage MS2 and its infectious RNA under the influence of O-methylhydroxylamine (OMHA) revealed a relationship between the chemical changes in the genome and the inactivating effect of OMHA. Some assumptions on the kinetics of modification of the cytidine residues in bacteriophage MS2 and its infectious RNA appear to have been experimentally confirmed. For example, the rates of individual stages of the reactions that occurred during the action of OMHA on the cytosine nucleus varied with the concentration of the reagent. The higher structures of polynucleotides and nucleoproteins apparently have a substantial effect on the reactivity of the cytosine nucleus. This makes it possible to calculate the contribution of the different kinds of modified residues to the inactivation process. The kinetics of modification of the cytidien residues in the

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USSR

BUDOVSKIY, E. I., et al., Genetika, No 1, 1971, pp 120-129

monomers was found to be virtually independent of the ionic strength or presence of Versene. The influence of these factors on the kinetics of bacteriophage inactivation is ascribed to their action on the quaternary structure of the bacteriophage nucleoproteins.

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S UDC 541.15+539.163

USSR

LUK'YANOV, V. B., KOROBKOV, V. I., BERDONOSOVA, D. G., MELIKHOV, I. V., and SVERDLOV, YE. D.

"Experience in Application of Methods of Mathematical Statistics in Radiochemical Investigations"

V sb. "Probl. planir. eksperimenta (Problems of Planning Experiment - Collection of Works) pp 218-222, Moscow, Nauka, 1969, (from Referativnyy Zhurnal Khimiya, No 3, Vol I, 10 Feb 70, Abstract No 3 B703)

Translation: Examples are presented of the usage of mathematical statistics methods for the solution of certain specific problems in radiochemistry. The random balance method is used to study the influence of various factors (concentration of microcomponent, temperature, mixing rate, etc.) on the cocrystallization coefficient D of RbCl between the solution and the KCl precipitate (with isothermal growing of crystals in the solution of constant composition). The independence of D on the mixing rate, initial dimensions of seed crystals, and crystallization time is shown. The influence of temperature x_2 and mass of seed crystals x_7 on the value of D can be adequately described by a linear regression equation which for the variables coded has the form $D = 0.130 + 0.022\ x_2 - 0.020\ x_7$.

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USSR

LUK'YANOV, V. B., et al., V sb. "Probl. planir. eksperimenta, pp 218-222, Moscow, Nauka, 1969

This value of D agrees well with values produced by the method of forced and spontaneous recrystallization, and amounts to 0.10 ± 0.02. Also, the application of the dispersion analysis method for clarification of the mechanism of organic reactions of complex bromopropanol esters with thiourea marked with radioactive S is noted. Complex esters of 3-bromopropanol-1 (I), 2-bromopropanol (II) and 2,3-debromopropanol-1 (III) are compared. The solvent in the experiments was varied (methylethyl ketone, acetononitryl), as well as the reaction temperature (80 and 100°) and the radicals included in the composition of the complex bromopropanol esters. The data of radiochromatographic analysis of the reaction products are used to calculate the rate constant of the reactions investigated, which in all cases were found to be of the second order. The values of rate constants produced are processed by dispersion analysis. It is shown that in the case of I, the influence of temperature and solvent predominates, while in the cases of II and III - the influence of temperature, solvent and radicals predominates. Apparently, for II and III in the process of the reaction, migration of the acyl radical occurs. The maximum

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USSR

LUK'YANOV, V. B., et al., V sb. "Probl. planir. eksperimenta, pp 218-222, Moscow, Nauka, 1969

reactivity in I is found to be that of the second Br atom. Also, the possibility of using mathematical statistics methods for qualitative and quantitative determinations of the composition of the material on the basis of its radiation is shown.

A. Pozdnyakov

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USSR

UDC 547.963.32'854.81

SVERDLOV, YE. D., SPASOKUKOTSKAYA, T. N., and RUDOVSKIY, E. I., Institute of the Chemistry of Natural Compounds imeni M. M. Shemyakin, Academy of Sciences USSR, Moscow

"The Mechanism of the Mutagenic Action of Hydroxylamine. The Syntheses of Cytidine Di- and Triphosphates Modified with Hydroxylamine and O-Methylhydroxylamine"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 5, 1972, pp 700-704

Abstract: The mutagenic effects of hydroxylamine (I) and O-methylhydroxylamine (II) are known to be primarily due to their modification of the cytosine nucleus. Since it is known that the modification of the nucleotides is influenced by the pH, concentration of I or II, and the temperature, in the present study these conditions were appropriately modified to achieve the synthesis of 1-β-D-ribofuranosyl-4,6-dihydroxylamino-5,6-dihydro-2-pyrimidinone-5'-triphosphate (III), 1-β-D-ribofuranosyl-4,6-di(O-methylhydroxylamino)-5,6-dihydro-2-pyrimidinone-5'-triphosphate (IV), the 5'-diphosphate (V) and the 5'-triphosphate (VI) of 1-β-D-ribofuranosyl-4-hydroxylamino-2-pyrimidinone, and the 5'-diphosphate (VII) and the 5'-triphosphate (VIII) of 1-β-D-ribofuranosyl-4-(O-methylhydroxylamino)-2-pyrimidinone. For the synthesis of III 0.5 ml of an aqueous solution of 0.2 M CTP was incubated with 2.5 ml of 8 M I, pH 6.5, for

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002203220008-2"

USSR

SVERDLOV, YE. D., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 5, 1972, pp 700-704

6 hr. at 20°C, following which I was removed by chromatography on Sephadex G-10, and the nucleotides were separated by ionexchange chromatography on AG 1X8 and DEAE-Sephadex A-25. The yield of III was in the 35-40% range. The nucleotides were determined from their absorbancies in the UV region. IV was produced by incubating 0.2 ml of 1 M CTP with 2.5 ml of 5 M II, pH 6, for 5 hr. at 34°C; the yield was in the 35-40% range. Syntheses of V and VI were attained by the incubation of 0.5 ml of 2 M CDP or CTP, respectively, with 2.5 ml of 1 M I, pH 5, for 6 hr. at 54°C; the yields varied from 25-30%. VII and VIII were formed by the reaction of 0.2 ml of 1 M CDP or CTP, respectively, with 1.5 ml of 1 M II, pH 5, for 7-8 hr. at 54°C, and the yields obtained were 20-25% of the starting cytosine nucleotides. Data were also obtained which indicated that the higher concentrations of I and II led to degradation of the pyrophosphate group to a limited extent. Evaluation of the spectral characteristics of the triphosphates showed that III had an absorption maximum at 225 nm at pH 7, while that of IV was at 230 nm. At pH 7 VI had absorption maxima at 235 and 270 nm, and VIII had maxima at 242 and 272 nm.

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2/2 028 UNCLASSIFIED PROCESSING DATE--090CT70

CIRC ACCESSION NO--AP0114466

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER DRAWS CERTAIN CONCLUSIONS AS THE RESULT OF RADAR RESEARCHES ON UHF AND SHF, AS WELL AS CONTINUOUS ULF ON THE RADIO EMISSION OF AURORAE AND THE UPPER ATMOSPHERE IN THE AURORAE ZONE, CARRIED OUT IN THE SOVIET UNION. THE PAPER PRESENTS PRELIMINARY RESULTS OF COMPARISON OF PHENOMENA IN THE PERIOD OF THE MAXIMUM AND MINIMUM OF SOLAR ACTIVITY.

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TITLE--RADIOPHYSICAL RESEARCHES IN THE AURORAE ZONE -U-

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USSR

ROZHKOV, V. A., PANFILOV, B. A., SVERDLOVA, A. N.

UDC 621.317.32+621.317.335.2

"Measuring the Volt-Capacitive and Transfer Characteristics of Metal-Dielectric-Semiconductor Structures"

Moscow, Pribory i Tekhnika Eksperimenta, No 6, 1971, pp 127-129

Abstract: The volt-capacitive characteristics are used to investigate the electric properties of metal-dielectric-semiconductor (MDS) structures. In a number of cases it is useful to know the time behavior of the capacitance. Accordingly, an all-purpose scheme has been developed for investigating the time behavior of the capacitance C(t) and automatic recording of the volt-capacitive C(V)-characteristics of MDS structures. The proposed device permits: 1) recording of the C(V)-characteristic under equilibrium (quasiequilibrium) conditions by taking measurements with respect to points; 2) recording the C(V)-characteristics on a pen recorder where it is possible to isolate the hysteresis phenomena in the MDS structures; 3) measurement of the instantaneous capacitance at any point in time, which permits calculation of the effective lifetime of the minority carriers τ and the surface generation speed S in the semiconductor. The schematic of the measuring apparatus is presented, and its operating characteristics are discussed. An example oscillogram of the capacitance relaxation of the Si-SiO_2-Al structure shifted to the inversion region is presented.

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USSR UDC: 666.638.678.027.5

SOKOLOVA, M. A., MERKUSHEV, O. M., NEYMAN, M. I., ASHKRUMOVA, A. Yu., SVERDLOVA, A. N.

"A Ceramic Suspension for Making Thin-Film Capacitors"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 16, Jun 71, Author's Certificate No 303663, Division H, filed 31 Jan 69, published 13 May 71, p 187

Translation: This Author's Certificate introduces a ceramic suspension for making thin-film capacitors which is based on an organic solvent. As a distinguishing feature of the patent, a dielectric coating with a dense structure is produced by taking the initial components in the following quantitative ratios (in parts by weight): ceramic material--10-20, acetone--30-60, ammonium acetate--0.1-0.5, and the remainder amylacetate--up to 100 parts by weight of the total.

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USSR

UDC: 621.319.4

NEYMAN, M. I., SOKOLOVA, M. A., SVERDLOVA, A. N., VINOGRADOVA, N. V., RYNDINA, L. P., STARENCHENKO, V. G., KOTEL'NIKOVA, L. P.

"Thin-Film Ceramic Capacitors With High Specific Capacitance"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiodetali (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 4(21), pp 3-9 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V322)

Translation: The authors discuss a new method of making thin-film ceramic capacitors with high specific capacitance. Their basic electrical characteristics are given.

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Acc. Nr: AP0049967 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: 4R0061

94911j Role of fluctuation processes in the broadening of electron-vibrational absorption bands of molecules in liquids and solutions. Bakhshiev, N. G.; Sverdlova, O. V. (USSR). *Opt. Spektrosk.* 1970, 28(1), 177–8 (Russ). The influence of dispersion interactions on longwave electron absorption spectrum of C_6H_6 was studied. The linear correlation between the width $\delta(\Delta\nu)_{1/2}$ of the C_6H_6 band in pentane, water, hexane, MeOH, Freon 113, EtOH, Me_2CO, cyclohexane, and CCl_4 solns. and liq. C_6H_6 on the position of $\nu_{max.}$ of this band was found. The slope of the correlation straight line was: tan α = 0.6. The remaining components (in addn. to the electron-vibrational components) changed in the same manner. The value was in accord with the results from ir spectra of a row of mols. in the liq. phase (tan α = 0.6–0.7), which proved the same mechanism of the broadening of electron-vibrational and vibrational bands. The fluctuation nature cannot be attributed to those spectral bands the width of which is detd. by intramol. factors (cf. B. S. Neporent, 1951).

J. Vachek

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REEL/FRAME 19801905

USSR

SMIRNOV, A. V., BURLAKOVA, Ye. V., KOL'S, O. R., SVERDLOVA, Ye. A., and FEDOROV, G. Ye., Moscow State University

UDC 577.3+612.816

"Changes in Nerve Fiber Mitochondria of the Crab During Conduction Blocked by Different Agents"

Moscow, Doklady Akademii Nauk SSSR, No 1, 1972, pp 214-125

Abstract: Isolated nerve from an extremity of the green crab Carcinus maenas was stimulated after the conduction of excitation was blocked by (a) a constant current (2 to 3 v), (b) elevation of temperature to 37 to 40°C, (c) 10^{-3} M dinitrophenol solution. Examination of mitochondria from the control (resting) nerve showed them to be elongated with distinct external and internal membranes. The cristae were close together. The same picture was observed after 5 minutes of electrical stimulation of the nerve except that the cristae were somewhat farther apart. However, stimulation of the nerve after conduction was blocked by high temperature or by treatment with dinitrophenol caused the mitochondria to swell and become rounded. The cristae shortened considerably and in places became fragmented. In some cases the changes were so pronounced that the mitochondria resembled vacuoles.

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USSR

UDC 613.735:612.766.1

SOLONIN, Yu. G., STARIKOVA, S. K., and MAKAROV, Yu. V., Institute of Labor Hygiene and Occupational Diseases, Sverdlovsk

"The Effect of Physical Training on Some Functional Indices in Heavy Manual Work"

Moscow, Gigiyena i Sanitariya, No 1, Jan 71, pp 107-109

Abstract: Determinations of pulse frequency, respiration frequency, and respiration volume were conducted during performance of work by two groups of laborers doing heavy manual work, some active in athletics and other not active. The age, height, weight, type of work, and effort involved in the work were approximately the same for both groups. There was no significant difference in the functional indexes between the two groups - i.e., these indexes did not depend on whether or not the workers were engaged in athletics, but were determined solely by the conditions pertaining to the work itself, which were the same for both groups.

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UDC 539.374

SVEREV, O. A.

"Dynamic Elastoplastic Deformations in the Pressing of Pipes by Explosion"

Kiev, Prikladnaya Mekhanika, Vol 6, No 5, May 1970, pp 45-51

Abstract: A method is proposed for solving the general problem of explosive forming of pipes made from different materials with an arbitrary law of strengthening on the basis of the theory of elastoplastic deformations with an assumption concerning incompressibility of the material. A gap is assumed to exist between the pipes. This method is also applicable without any difficulties to pipe systems installed without a gap. The diagram of cylindrical loading is assumed to be known. In addition, it is assumed that the Masing principle, which takes Bauschinger's effect into account, is valid. The results of linear calculation for two pipes of different materials, which follow a linear law of strengthening, are presented. The value of the residual contact pressure is obtained.

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USSR

UDC 547.558.1

STEPANOV, B. I., BOKANOV, A. I., and SVERGUN, V. I., Moscow Chemical-Technological Institute imeni D. I. Mendeleyev

"Spectral Properties and Structure of Tertiary Mesityl(ethyl)phosphines"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 533-536

Abstract: Chemical and spectral properties of aromatic phosphines indicate absence of conjugation between aromatic substituents and the unshared pair of electrons at the phosphorus atom. Schindlbauer proposed that in case of tris-o-tolylphosphine the valence angles at the phosphorus atom are enlarged due to steric hindrance, the p-character of unshared electrons is increased and they become conjugated. An attempt was made to check this out on the example of trimesitylphosphine. The study showed that in the basic state the valence angles of the phosphorus atom in trimesitylphosphine molecule are not deformed the unshared electrons are not conjugated with aromatic nuclei, and the bathochromic shift observed in the UV spectrum is evidently due to the stabilization of an excited molecule.

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